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ABSTRACT

The North Carolina End-of-Course Testing Program was established to provide student, school, and school system information about achievement in high school courses. This report describes: (1) "Characteristics of Chemistry Students"; (2) "Student Performance on the Core Test"; (3) "Combining Performance and Participation: Yield and Effective Yield"; (4) "Anticipated Final Grades and Scores on the Core Test"; and (5) "Average Performance on the Curriculum Test." Each Chemistry student took a test containing 60 common or core items and one of four different sets of 40 items during the final days of the school year. The average core score was 37.5, or 62.5 percent correct. Performance on the core test differed by parental education, sex, ethnic group, grade level in school, and anticipated final course grade. The select group of students taking Chemistry in the tenth grade had higher average scores than students at any other grade level. Performance and participation rates in educational regions and public school systems, and state percentile tables for 1989 are provided in the appendices.(YP)

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End Of Course Testing

Report of Student Performance

CHEMISTRY

Spring 1989

BOB ETHERIDGE
STATE SUPERINTENDENT OF PUBLIC INSTRUCTION

DIVISION OF ACCOUNTABILITY
NORTH CAROLINA DEPARTMENT OF PUBLIC INSTRUCTION
RALEIGH, NC 27603-1332

Published 1989

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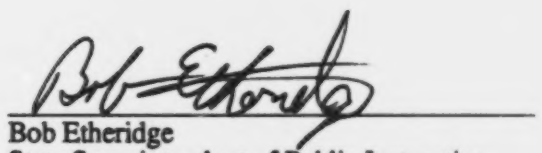
FOREWORD

The End-of-Course Testing Program was established in 1985-86 to provide comparative information about student performance and curricular information about school and school system performance on the goals and objectives outlined in the *Standard Course of Study* and the *Teacher Handbook*. By assessing student achievement in this manner, state and local educators can determine the degree to which students are meeting the expectations set forth in the *Standard Course of Study*.

Chemistry was first tested in the 1988-89 school year. A select group of students takes Chemistry, and almost 85 percent of Chemistry students plan to continue their education after high school in a four-year college, community college, or technical school. Student participation in Chemistry varies widely among school systems. The average statewide performance on the Chemistry Test was within the range expected at the first administration.

Performance in this initial year will provide a standard to which growth in Chemistry achievement can be compared in future years as school systems put forth their best efforts to improve secondary education in North Carolina.



Bob Etheridge
State Superintendent of Public Instruction

ABSTRACT

The North Carolina End-of-Course Testing Program was established to provide student, school, and school system information about achievement in high school courses. The first Algebra I End-of-Course Test was administered in 1985-86. Algebra II and Biology were added to the testing program in 1986-87 and U.S. History was added in 1987-88. Geometry and Chemistry were added in 1988-89. Other high school courses will be added in future years.

The 33,352 students who took the Chemistry End-of-Course Test in 1988-89 were a subgroup of the high school population. School systems vary in the proportion of students that take Chemistry during their school career and in the proportion of students that take Chemistry at different grade levels. It appears that approximately 38.0 percent of a class of students take Chemistry. In addition, it appears that students whose parents have no more than a high school education and black students appear to be underrepresented in Chemistry classes across the state.

Each Chemistry student took a test containing 60 common or core items and one of four different sets of 40 items during the final days of the school year The average score was 37.5 or 62.5 percent correct, which is in the range of scores expected at the initial administrations of end-of-course tests. Performance on the core test differed by parental education, sex, ethnic group, grade level in school, and anticipated final course grade. The select group of students taking Chemistry in the tenth grade had higher average scores than students at any other grade level. The grading standards for tenth-grade performance appear to be higher than the standards for other students.

Schools and school systems can identify strengths and weaknesses in their instructional programs by examining relative performance on the goals and objectives measured by the 220 items administered in 1989. Average performance on the goals covering general and basic chemistry was higher than that for goals covering more specialized topics.

Report of Student Performance

Chemistry

Spring 1989

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Published 1989

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Introduction

North Carolina has developed six end-of-course tests and is in the process of developing additional end-of-course tests within a number of subject areas. The purposes of the tests are twofold:

1. The tests provide information about each individual student's performance relative to that of other students in North Carolina.

2. The tests provide information about school and school system achievement on the subject area goals and objectives specified in the *Standard Course of Study* and the *Teacher Handbook*.

The development of all the end-of-course tests will require many years of effort. End-of-course tests are the final product of a process which includes: curriculum development and review; statewide curriculum surveys; test specification; the writing, review, and field-testing of a large pool of test items matched to objectives in the *Teacher Handbook*; test construction using selected items from the pool; and review, field-testing, and equating of different forms of each test. Several forms of each end-of-course test are developed so that the same tests are not administered in subsequent years.

Based on statewide enrollment patterns and recommendations made by two commissions on education, the subject areas chosen for initial test development were Biology and Algebra I. Item pools for these two courses were built in the spring of 1985. The results of the item development phase indicated that the Algebra I items were sufficient in quality and quantity to merit building end-of-course tests. Additional Biology items and an item bank for Algebra II were developed during the 1985-86 school year, including field-testing in selected sites in May of 1986. In addition to Algebra I, both Biology and Algebra II End-of-Course Tests were administered statewide at the end of the 1986-87 school year. Since then, tests in additional courses have been added to the End-of-Course Testing Program at the rate of one or two a year. The State Board of Education's schedule for development of end-of-course tests through the 1991-92 school year is displayed in a chart on the final page of this report.

Although end-of-course tests for different subject areas will vary in length, 110 minutes will be sufficient for administration of the multiple-choice tests in all subjects. The State Board of Education requires that end-of-course tests be administered during 110-minute periods within the last 10 days of school, and recommends that they be administered during final exam periods. In order for scores to be returned to school systems prior to the end of the school year, the proofs portion of the Geometry Test is administered during regular class periods in the spring. Also, when implemented in 1991-92, the English II essay test may be administered during the spring for scoring to occur prior to the end of the year.

The first North Carolina Chemistry End-of-Course Test was administered at the end of the 1988-89 school year. Four forms of the Chemistry Test were administered in each classroom. Each form consisted of 60 common items (the core test) and 40 variable items. Each year new forms will be administered, including new, statistically equivalent, core tests. Average core scores at the initial administration in 1989 will provide a baseline with which to compare subsequent performance. Statewide performance on the entire set of items (the 220-item curriculum test) provides a standard to which school and school system achievement on goals and objectives can be compared.

Characteristics of Chemistry Students

Other North Carolina testing programs assess achievement in basic subject areas of an entire cohort or class of students. End-of-course assessments are different in two ways. First, some of the courses are offered to students at different grade levels. Second, some courses are not required of all students; the students who do take the courses are a subgroup of the total student population.

Table 1 compares certain characteristics of Chemistry students with the broader population of all enrolled students. The top portion of the table provides the distribution of Chemistry students at various grade levels compared with the average daily membership in those grades. While the largest percentage of Chemistry students (70.4) was in the eleventh grade, 11.8 percent were in the tenth grade and 17.6 percent were in the twelfth grade. Most students taking Chemistry in the tenth grade are on an accelerated course sequence which includes Biology in the ninth grade and may include two additional advanced science courses after Chemistry.

A cross section of 33,352 students took Chemistry in different grade levels in 1988-89. An estimate of 38.0 percent of a cohort, or class, of students who will eventually take Chemistry in their school career was obtained by using enrollment in ninth grade as a cohort estimate. This estimate varies considerably among school systems, from a low of 13.2 percent to a high of 83.1 percent (see Table 11 and Figures 17--24 in the Appendix). Currently, the majority of students taking Chemistry intend to further their education beyond high school. Approximately 72.5 percent plan to enroll in a four-year college and another 12.0 percent plan to attend a community or technical college.

The second section of Table 1 compares the ethnic composition of Chemistry with the ethnic composition of K-12 pupil membership.[1] Compared with their distribution in the total school population, black students appear to be underrepresented and white students appear to be overrepresented in Chemistry classrooms across the state. While 30.4 percent of the K–12 population is black, only 21.2 percent of Chemistry enrollment is black.

The third section of Table 1 compares parental education levels of Chemistry students with parental education levels of students in the eighth grade statewide.[2] Students who have parents with an education beyond high school composed 74.4 percent of Chemistry students but only 43.0 percent of the eighth-grade class. On the other hand, students with less educated parents appear to be underrepresented in Chemistry classes across the state. Approximately 57.0 percent of the eighth-grade students but only 25.6 percent of Chemistry students have parents with no more than a high school education.

---

[1]Obtained from Table 11, North Carolina Public Schools, *Statistical Profile 1989*.

[2]Teachers recorded education level of the most educated parent of eighth-grade students taking the California Achievement Tests in 1988-89. Chemistry students recorded education level of their most educated parent.

Table 1

North Carolina Chemistry Students[1] Compared with 1988-89 First-Month Average Daily Membership in Tenth, Eleventh, and Twelfth Grades

GRADE	ADM	Chemistry Students[1]	Percent of ADM	Percent of Chemistry Students
Tenth	82,375	3,948	4.8	11.8
Eleventh	74,622	23,475	31.5	70.4
Twelfth	72,278	5,870	8.1	17.6
Other		59		0.2
TOTAL	229,275	33,352	14.5	100.0

Percent of a class of students[2] taking Chemistry= 38.0

1988-89 K-12 Pupil Membership[3] and Chemistry Students by Ethnic Group

Ethnic Group	Membership	Percent of Membership	Chemistry Students[1]	Percent of Chemistry
American Indian	17,403	1.6	415	1.2
Black	328,395	30.4	7,047	21.2
White	720,698	66.7	24,975	75.2
Other	13,989	1.3	780	2.3
TOTAL	1,080,485	100.0	33,217	99.9

Parental Education of Eighth-Grade and Chemistry Students

Parental Education	Eighth Grade Students[4]	Percent of Students[4]	Chemistry Students[1]	Percent of Chemistry
Eighth Grade or Less	2,091	2.7	180	0.5
8th to 12th	10,814	14.0	1,419	4.3
High School Graduate	31,213	40.3	6,883	20.8
More Than High School	33,345	43.0	24,682	74.4
TOTAL	77,463	100.0	33,164	100.0

[1]As identified in the 1988-89 administration of the Chemistry End-of-Course Test.
[2]The 1988-89 ninth-grade class was used as a proxy for a class of students.
[3]Obtained from Table 11, North Carolina Public Schools, *Statistical Profile 1989*.
[4]As identified in 1988-89 administration of the California Achievement Test.

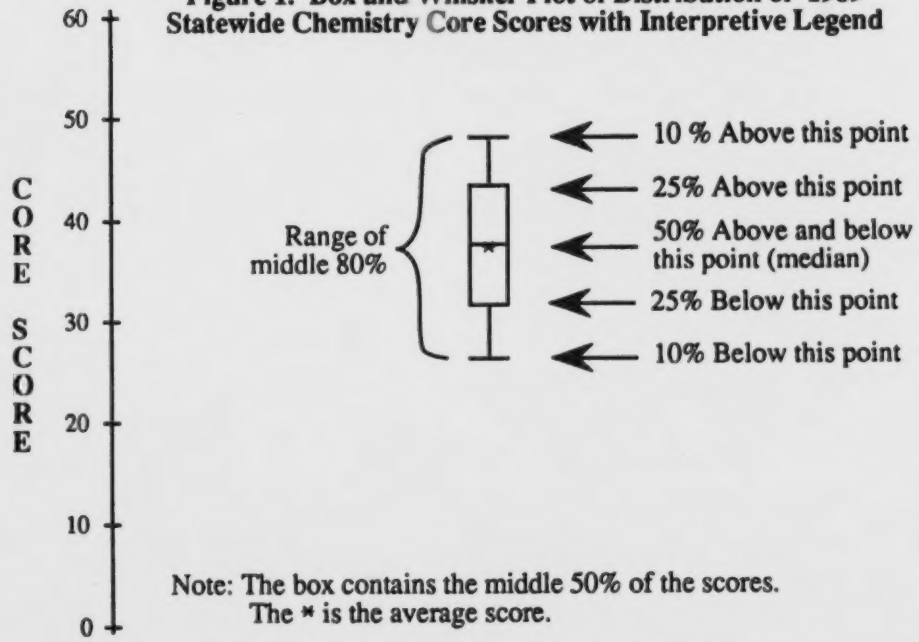
Student Performance on the Core Test

Summary scores for the 60-item core test are presented in Table 2 . Performance on the 1989 Chemistry Test provides a standard to which growth in Chemistry achievement can be compared. In 1989, the average score for the 33,352 students taking the test was 37.5, or 62.5 percent correct. This score is within the range expected at the initial administration of end-of-course tests.

Group achievement on tests, whether for schools, school systems, or the state, is usually reported using summary numbers such as the average or median which indicate typical performance for the group. One number, whether it is the average or the median score, provides limited information about performance. *Box and whisker plots* are graphs which describe not only typical performance, but also the performance of most of the students by showing the spread of scores. Box and whisker plots allow the comparison of the high and low scores for different groups as well as the middle scores.

Figure 1 shows how to interpret the box and whisker plots using statewide Chemistry scores for 1988-89. The *box* represents the middle 50 percent of scores with the median represented by a horizontal line inside the box. An '*' inside the box shows the location of the average (mean) score. The *whiskers* extend up to the 90th percentile and down to the 10th percentile. The entire figure shows the range of the middle 80 percent of scores. As can be seen in Figure 1, about 50 percent of Chemistry students answered between 32 and 43 (inclusive) items correctly. About 10 percent of the Chemistry students scored 49 or above and ten percent scored at or below 26.

Figure 1. Box and Whisker Plot of Distribution of 1989 Statewide Chemistry Core Scores with Interpretive Legend



Note: The box contains the middle 50% of the scores.
The * is the average score.

Table 2

Average Performance on Chemistry Core Test: 1989

	Number Tested	Average Score	Average Percent Correct
State	33,352	37.5	62.5
Sex			
Male	14,829	38.9	64.8
Female	18,428	36.4	60.6
Ethnic Group			
American Indian	415	33.9	56.5
Black	7,047	33.1	55.1
White	24,975	38.7	64.5
Other	780	39.4	65.7
Parental Education			
Less than Eighth Grade	180	35.3	58.9
Eighth to Twelfth	1,419	33.4	55.7
High School Graduate	6,883	35.3	58.9
More than Twelfth	24,682	38.3	63.9
Grade in School			
Ten	3,948	42.0	70.1
Eleven	23,475	37.6	62.7
Twelve	5,870	33.9	56.5
Other	59	37.3	62.1

Table 2 also shows average performance on the 60-item core test by sex, parental education, ethnic group, and grade in school. Figures 2 through 5 show the distributions of Chemistry scores by various groups using box and whisker plots.

Average performance for males was 2.5 raw score points higher than that for females. The distribution of scores for males is also somewhat higher than the distribution for females. On average, white students and 'other' students scored higher than American Indian students and black students. Students who have parents educated beyond high school had somewhat higher average scores than students who have less educated parents.

The largest difference in average scores appears among students taking Chemistry in different grade levels. Only 4.8 percent of the tenth-grade class took Chemistry; this select group of high achieving students scored higher than any other group. The average score for tenth-grade students was 42.0, more than 4 points higher than the average score for eleventh-grade students, and more than 8 points higher than the average score for twelfth-grade students. In Figure 5 it can be seen that 90 percent of tenth grade students scored above 32 while approximately 75 percent of eleventh grade students scored above this point.

Combining Performance and Participation: Yield and Effective Yield

Since Chemistry is a selective course not taken by all students, performance may be related to participation within school systems or throughout the state. For example, if only the top 20 percent of students take Chemistry, scores will necessarily be higher than if the top 50 percent take Chemistry. *Yield* is an index of the effectiveness of an Chemistry program which takes into account both participation and performance. It is calculated by multiplying the percent of a class taking Chemistry by the percent of core items answered correctly and then multiplying by 100. Yield would be 100 if all students took Chemistry and all students achieved a perfect score. For the state, approximately 38.0 percent of a class of students took Chemistry in 1988-89 and these students achieved an average of 62.5 percent of core items correct, producing a yield of 23.8. If average achievement does not change, yield will increase whenever participation increases.

Effective Yield is a similar index but it counts as 'participating' in Chemistry only those students whose achievement is above a certain cutoff point. This cutoff point is an estimation of whether or not they will pass the course. The estimate for the cutoff point is 26. In 1988-89 Chemistry teachers indicated that approximately 9.6 percent of their students would receive a final grade of 'F'; the same year about 8.4 percent of students received a score below 26. For the state, the 'effective' percent of a class, i.e. students scoring at or above 26 in 1988-89, was 30,568 of the 87,675 students estimated to be in the cohort, or 34.9 percent, producing an effective yield of 21.8. Effective yield will be the same as yield only when all students taking Chemistry achieve at or above the estimated passing score of 26. Therefore, the effective yield index will normally be lower than the yield index. Table 3 shows the yield and effective yield indices for 1989.

Figure 2. Distributions of Chemistry Core Scores by Sex -- 1989

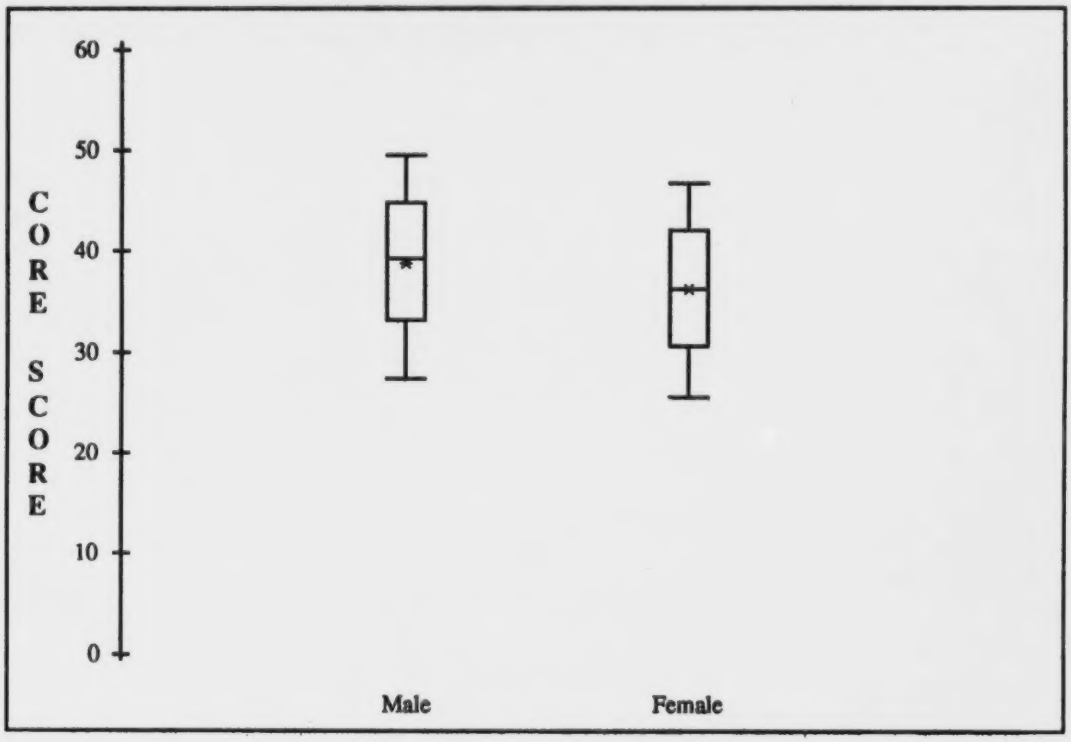


Figure 3. Distributions of Chemistry Core Scores by Ethnic Group -- 1989

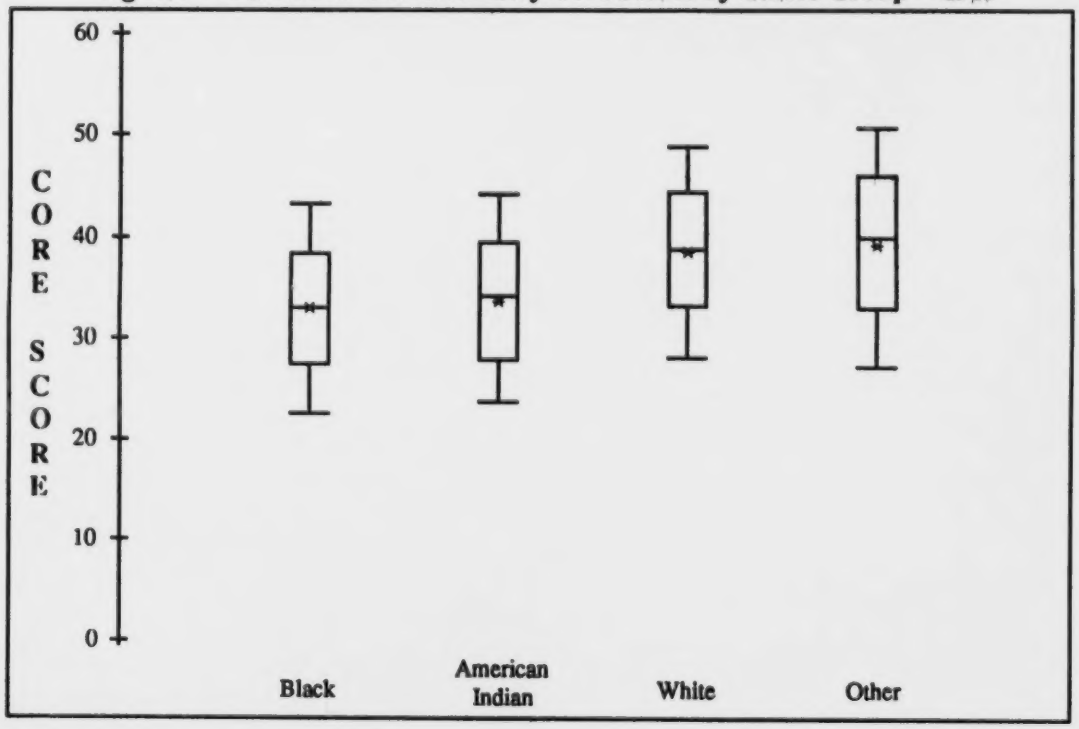


Figure 4. Distributions of Chemistry Core Scores by Parental Education -- 1989

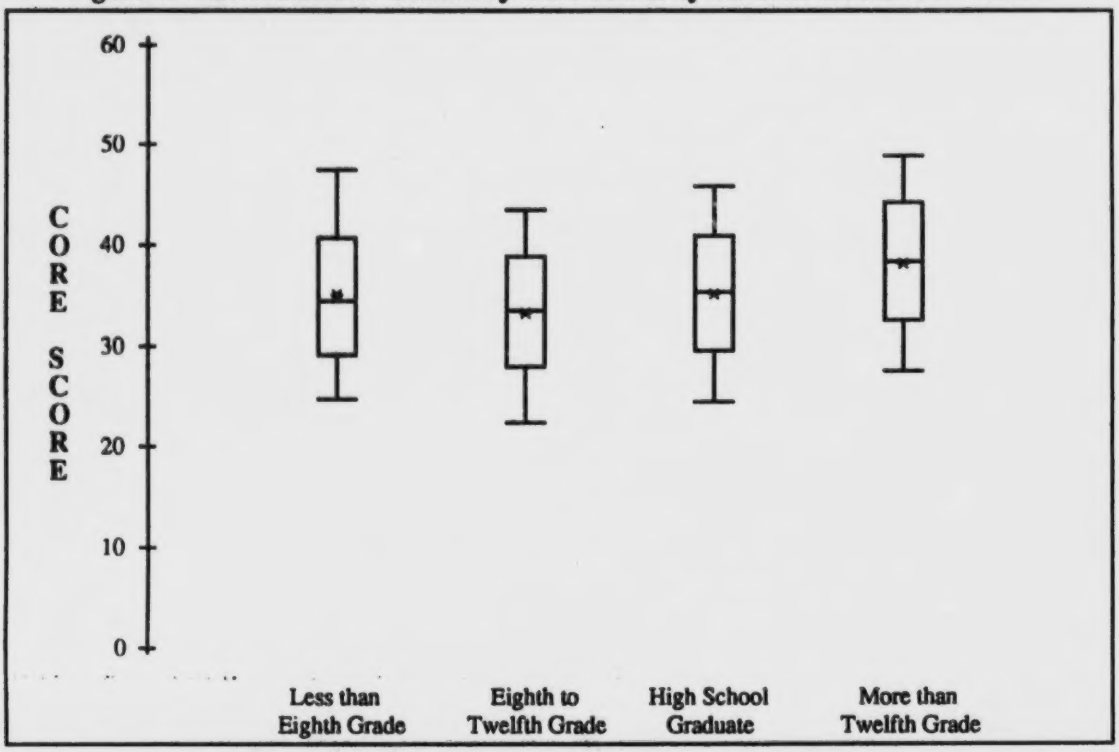


Figure 5. Distributions of Chemistry Core Scores by Grade Level -- 1989

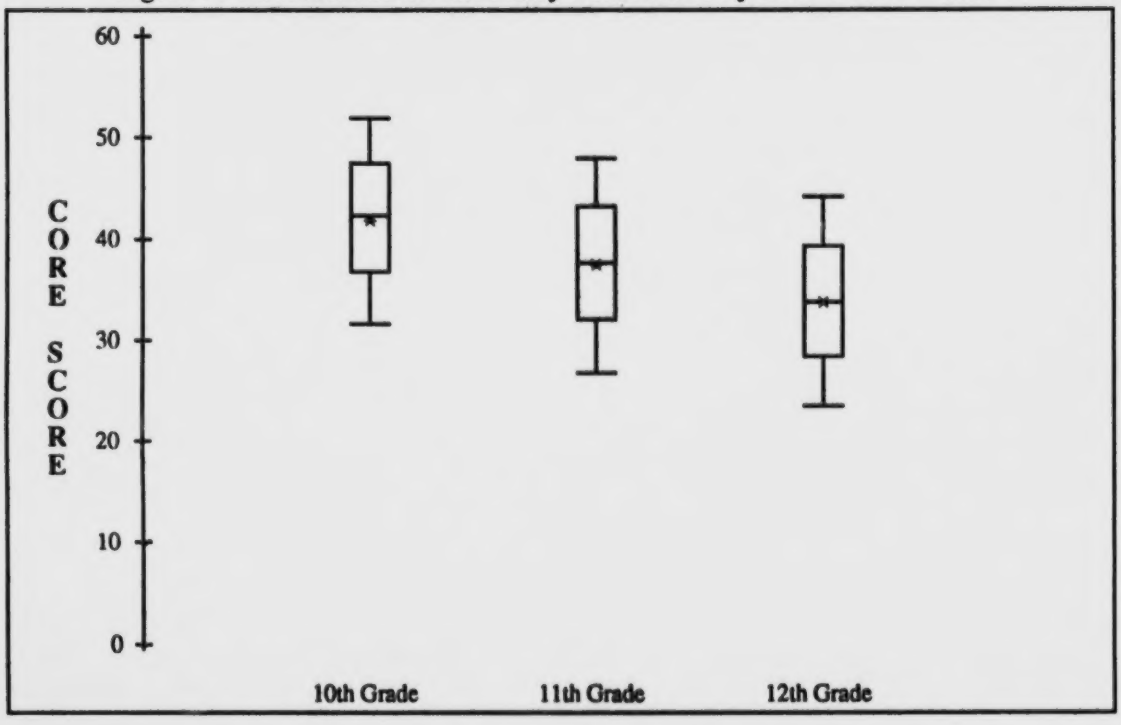


Table 3

Chemistry Yield and Effective Yield Indices for 1989

	1989
Yield	23.8
Effective Yield	21.8

The 1989 core performance, participation (percent of class), yield, and effective yield for all 139 school systems in the state are presented by region in Table 10 in the Appendix. Comparisons among school systems should always be sensitive to the fact that the social and demographic factors which are strongly related to differences in achievement are not distribute evenly across the state. These factors influence the yield indices as well as performance. For example, school systems in high socio-economic areas should have both high participation and performance, resulting in high yield and effective yield indices. One appropriate comparison might be among school systems with similar socio-economic characteristics. Another would involve comparing yield and effective yield indices for a school system across time to look for changes in participation and performance.

The participation rates and average core performance for school systems are displayed in Figures 17 through 24. Vertical arrows represent the state averages. The lengths of the bars give a rough indication of yield and provide a visual representation of the effectiveness of school system Chemistry programs. School systems for which both bars extend beyond the state averages have both higher than average participation in Chemistry, and above average performance on the Chemistry End-of-Course Test.

Anticipated Final Grades and Scores on the Core Test

Chemistry teachers were asked to record each student's anticipated final grade on each answer sheet after the test was administered. Final grades were recorded for 32,924 of 33,352 Chemistry students. Table 4 gives the average score for various grade groups on the test and the percentages of students who were to receive the various grades for 1989. A consistent difference of about 3 to 4.5 raw score points was observed between score averages for different anticipated final grades. This pattern is an indication of test validity in that the results parallel the grading practices of teachers. The average for 'C' students was slightly lower than the statewide average, placing these students in the middle of the score distribution.

Table 5 compares the average scores by anticipated grades between tenth and eleventh-grade students for 1989. Average scores for the select group of tenth-grade students are somewhat higher than those for eleventh-grade students at each anticipated final grade. Greater proportions of students receive 'A's or 'B's in the tenth grade than in the eleventh grade and greater proportions of eleventh-grade students receive 'C's, 'D's or 'F's than tenth-grade students.

Box and whisker plots for the score distributions for each letter grade are displayed in Figure 6. The plot illustrates the spread of score points within letter grades and overlap in distributions across letter grades. For example, while the the typical 'F' student scored well below the typical 'D' student, more than 10 percent of 'F' students received an above average core score.

Table 4

Average 60-Item Core Scores by Anticipated Final Grade and Percentage of Students Receiving Each Grade*

Grades	Average	Percent
A	44.6	14.4
B	40.1	25.9
C	36.6	29.6
D	33.6	20.6
F	30.4	9.6

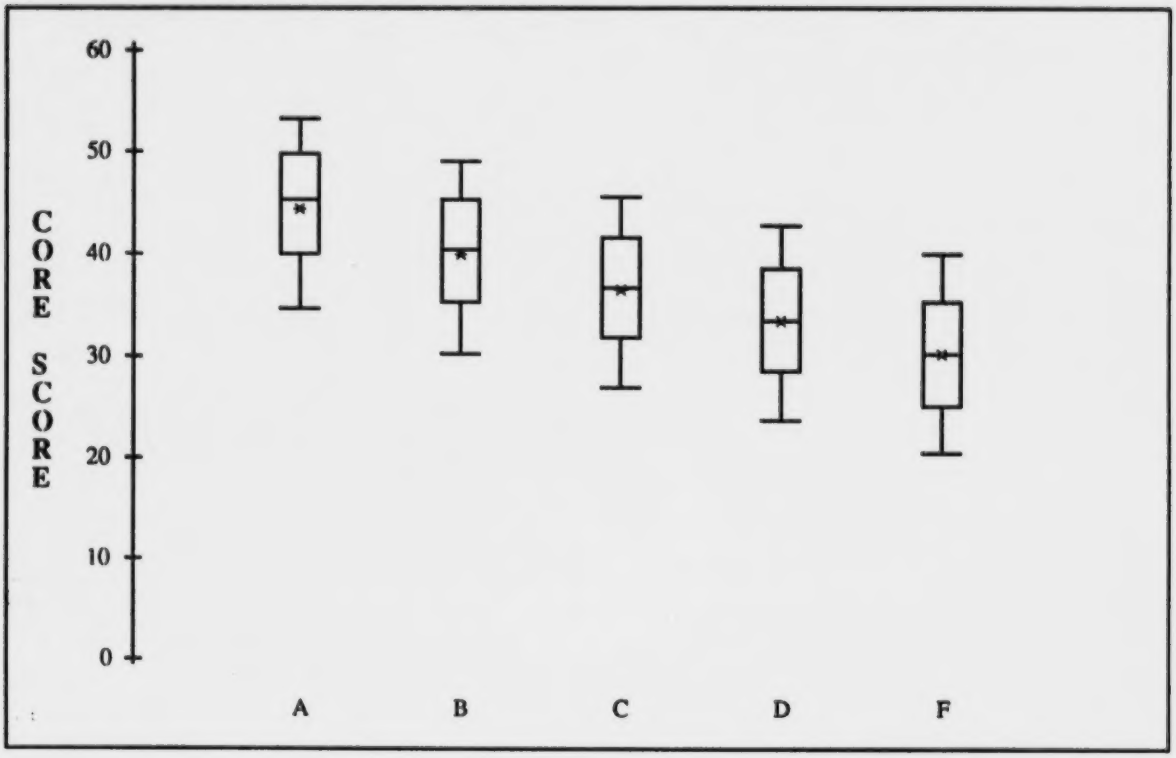
Table 5

Average 60-Item Core Scores by Anticipated Final Grade and Percentage of Students Receiving Each Grade within Tenth and Eleventh Grades*

	Average Scores for Each Grade		Percent Receiving Each Grade	
Grades	Grade 10	Grade 11	Grade 10	Grade 11
A	46.7	44.5	27.0	13.9
B	42.5	40.3	34.0	26.0
C	39.8	36.9	24.2	29.8
D	36.4	33.9	10.6	20.6
F	33.2	30.5	4.1	9.8

*N= 32,924; Grade 10 N=3,866; Grade 11 N=23,199

Figure 6. Distributions of Chemistry Core Scores by Anticipated Final Grade



Average Performance on the Curriculum Test

Table 6 shows average performance on the goals as measured by the 220 items assessed in 1989, for all Chemistry students in the state, and by sex, ethnic group, parental education level, and grade in school. Performance on objectives measured by 4 or more items is reported in Table 7. Goal and objective scores yield important information about performance within specific areas in the curriculum. The average percentage correct of all items measured in 1989 was 58.8.

The first four goals of the Chemistry curriculum cover basic concepts which are the foundations for the remainder of the course. Performance on all four of these goals was above the performance averaged overall test items. Performance on Objective 1.1 was higher (84.4 percent correct) than that for any other objective, indicating that Chemistry students understand the accepted methods and procedures of the scientific enterprise. Average achievement on Goal 2, in which students learn the fundamental classification schemes of matter and changes in matter, was also high (68.1 percent correct). In Goal 3, the focus changes from the general properties of matter to the specific properties of elements and atomic structure. Again, performance on this goal was above the average over all items, indicating that students are generally competent in using the periodic table, a major tool in the study of chemistry. Also fundamental to understanding basic chemistry, Goal 4 involves the use of measurement and computation.

In Goal 5 students study the important concepts involved in stoichiometry and kinetic molecular theory, including the mole concept and laws predicting the behavior of gases. Performance on this goal was slightly higher than the overall average.

In Goals 6, 7, and 8, the instructional focus changes from basic chemistry to the specific and more difficult topics involved in thermodynamics, the physical chemistry of electrolyte solutions, and organic chemistry. Average performance on these goals was between 6.6 and 10 percentage points lower than overall performance. Performance should improve on Goal 7, in which students study the nature of acids, bases, and salts, and the characteristics of solutions. Not only is organic chemistry a difficult area, but also it is taught later in the year. The relatively low average performance on Goal 8 may indicate that some teachers covered the topic while others did not.

Performance was relatively high on Goal 9, in which students study current topics in chemistry, indicating that the select group of high school students who take Chemistry are more aware of the relevance of current scientific advances in chemistry.

Statewide performance across all Chemistry goals and objectives shows areas of strength and areas in which improvement is needed. As schools and school systems examine their own performance on these goals and objectives, they can identify patterns of strengths and weaknesses relative to statewide performance.

Table 6

1989 Summary Results for Chemistry: 60-Item Core Test and 220-Item Curriculum Test

STATE REPORT

GOALS: THE LEARNER WILL UNDERSTAND:

GOAL 1: HISTORY, SCOPE, BASIC CONCEPTS, AND TECHNIQUES RELATED TO THE STUDY OF CHEMISTRY
GOAL 2: SYSTEMS OF CLASSIFICATION OF MATTER, NUCLEAR, PHYSICAL, AND CHEMICAL CHANGES
GOAL 3: DESCRIPTIVE CHEMISTRY AND PERIODIC PROPERTIES OF ELEMENTS
GOAL 4: CONCEPTS AND TECHNIQUES OF MEASUREMENT AND COMPUTATION AS THEY RELATE TO CHEMISTRY
GOAL 5: STOICHIOMETRY AND KINETIC MOLECULAR THEORY
GOAL 6: FUNDAMENTAL PRINCIPLES RELATED TO CHEMICAL REACTIONS, KINETICS, AND THERMODYNAMICS
GOAL 7: PROPERTIES OF ELECTROLYTE SOLUTIONS
GOAL 8: PRINCIPLES, REACTIONS, AND RELATED COMPOUNDS STUDIED IN ORGANIC CHEMISTRY
GOAL 9: RELEVANCE OF CURRENT TOPICS IN CHEMISTRY

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		19	37	13	19	24	29	37	29	13	60	60	220	220
ALL STUDENTS TESTED														
	33352	68.6	68.1	62.4	64.1	60.3	52.2	48.8	49.3	67.8	37.5	62.5	129.3	58.8
SEX														
MALE	14829	70.6	71.0	63.6	67.5	61.8	53.9	50.0	51.1	70.2	38.9	64.8	133.7	60.8
FEMALE	18428	66.9	65.7	61.4	61.4	59.1	50.8	47.9	47.9	65.9	36.4	60.6	125.8	57.2
PARENTAL EDUCATION														
LESS THAN 8TH	180	63.5	65.5	62.0	57.2	56.1	48.0	46.7	48.0	63.1	35.3	58.9	122.0	55.5
8TH TO 12TH	1419	62.1	61.6	57.7	54.7	54.2	46.2	43.1	44.1	59.9	33.4	55.7	115.4	52.5
HIGH SCHOOL	6883	64.9	64.2	59.7	59.2	56.5	48.9	45.6	46.1	63.6	35.3	58.9	121.4	55.2
MORE THAN 12TH	24682	70.0	69.6	63.4	66.1	61.8	53.5	50.0	50.5	69.5	38.3	63.9	132.4	60.2

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THAT GOAL. FOUR FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY OF THE 100 ITEMS WERE COMMON ACROSS THE FOUR FORMS (CORE). THE REMAINING 40 ITEMS VARIED BY FORM, SO THAT 220 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS.

Table 6, cont'd.

STATE REPORT

GOALS: THE LEARNER WILL UNDERSTAND:

GOAL 1: HISTORY, SCOPE, BASIC CONCEPTS, AND TECHNIQUES RELATED TO THE STUDY OF CHEMISTRY
GOAL 2: SYSTEMS OF CLASSIFICATION OF MATTER, NUCLEAR, PHYSICAL, AND CHEMICAL CHANGES
GOAL 3: DESCRIPTIVE CHEMISTRY AND PERIODIC PROPERTIES OF ELEMENTS
GOAL 4: CONCEPTS AND TECHNIQUES OF MEASUREMENT AND COMPUTATION AS THEY RELATE TO CHEMISTRY
GOAL 5: STOICHIOMETRY AND KINETIC MOLECULAR THEORY
GOAL 6: FUNDAMENTAL PRINCIPLES RELATED TO CHEMICAL REACTIONS, KINETICS, AND THERMODYNAMICS
GOAL 7: PROPERTIES OF ELECTROLYTE SOLUTIONS
GOAL 8: PRINCIPLES, REACTIONS, AND RELATED COMPOUNDS STUDIED IN ORGANIC CHEMISTRY
GOAL 9: RELEVANCE OF CURRENT TOPICS IN CHEMISTRY

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		19	37	13	19	24	29	37	29	13	60	60	220	220
GRADE IN SCHOOL														
TEN	3948	76.0	75.8	68.7	74.3	68.5	59.3	55.7	55.3	74.5	42.0	70.1	145.5	66.1
ELEVEN	23475	68.6	68.4	63.0	64.1	60.5	52.4	49.0	49.6	68.0	37.6	62.7	129.8	59.0
TWELVE	5870	63.3	61.8	55.9	57.3	54.1	46.7	43.3	44.2	62.6	33.9	56.5	116.5	53.0
OTHER	59	73.1	72.1	62.4	68.5	61.6	49.5	49.1	49.0	66.2	37.3	62.1	131.8	59.9
ETHNIC GROUP														
AMER.INDIAN	415	63.1	62.9	58.9	55.5	53.3	45.7	42.7	46.2	61.1	33.9	56.5	116.6	53.0
BLACK	7047	61.5	60.5	56.8	54.6	54.1	45.6	43.6	44.0	59.5	33.1	55.1	114.7	52.1
WHITE	24975	70.5	70.2	64.0	66.8	62.0	54.0	50.2	50.7	70.2	38.7	64.5	133.3	60.6
OTHER	780	71.9	71.3	64.0	71.1	65.7	56.3	53.4	53.7	69.1	39.4	65.7	138.2	62.8

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THAT GOAL. FOUR FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY OF THE 100 ITEMS WERE COMMON ACROSS THE FOUR FORMS (CORE). THE REMAINING 40 ITEMS VARIED BY FORM, SO THAT 220 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS.

Table 7

1989 Summary Results for Chemistry Goals and Objectives

		STATE
GOAL 1:	UNDERSTAND THE HISTORY, SCOPE, BASIC CONCEPTS, AND TECHNIQUES RELATED TO THE STUDY OF CHEMISTRY (19)	68.6
1.1:	KNOW ACCEPTED METHODS, PROCESSES, AND PROCEDURES TO CONDUCT SCIENTIFIC STUDY (6)	84.4
1.2:	KNOW THE PROPERTIES OF MATTER AND ENERGY (7)	55.5
1.3:	KNOW THE CONCEPT OF CONSERVATION OF MATTER AND ENERGY (6)	68.0
GOAL 2:	UNDERSTAND SYSTEMS OF CLASSIFICATION OF MATTER, NUCLEAR, PHYSICAL, AND CHEMICAL CHANGES (37)	68.1
2.1:	KNOW THE VARIOUS DESCRIPTIVE CLASSIFICATIONS OF MATTER (7)	69.6
2.2:	KNOW THE BASIC CHEMICAL CONCEPTS OF ATOMS AND MOLECULES (6)	72.5
2.3:	KNOW THE CONCEPTS OF ELEMENTS, COMPOUNDS, AND MIXTURES (6)	74.7
2.4:	KNOW VARIOUS TYPES OF NUCLEAR CHANGES (6)	63.6
2.5:	KNOW ABOUT PHYSICAL CHANGES SUCH AS PHASE CHANGES AND THE CHARACTERISTICS OF THESE CHANGES (6)	59.0
2.6:	HAVE KNOWLEDGE OF THE NATURE AND EVIDENCE OF CHEMICAL CHANGES (6)	69.0
GOAL 3:	UNDERSTAND DESCRIPTIVE CHEMISTRY AND THE PERIODIC PROPERTIES OF ELEMENTS (13)	62.4
3.1:	KNOW DESCRIPTIVE TERMINOLOGY PERTAINING TO ATOMIC MODELS AND CONFIGURATIONS OF ELECTRONS (6)	62.0
3.2:	KNOW THE ORIGIN AND NATURE OF THE PERIODIC PROPERTIES OF THE ELEMENTS, AND THE UTILITY OF THE PERIODIC TABLE (7)	62.7
GOAL 4:	UNDERSTAND CONCEPTS AND TECHNIQUES OF MEASUREMENT AND COMPUTATION AS THEY RELATE TO CHEMISTRY (19)	64.1
4.1:	KNOW HOW TO MEASURE ACCURATELY LENGTH, AREA, VOLUME, MASS, WEIGHT, TEMPERATURE, AND TIME, AND RECORD THE MEASUREMENTS AS PRECISELY AS MEASURING DEVICES PERMIT (7)	64.0
4.2:	KNOW HOW TO USE SCIENTIFIC NOTATION (6)	72.7
4.3:	HAVE KNOWLEDGE OF MATHEMATICAL OPERATIONS INVOLVING MANIPULATIION OF UNITS AND UNIT CONVERSIONS (6)	55.7
GOAL 5:	HAVE AN UNDERSTANDING OF STOICHIOMETRY AND KINETIC MOLECULAR THEORY (24)	60.3
5.1:	KNOW HOW TO CONSTRUCT AND USE CHEMICAL FORMULAS AND EQUATIONS (7)	69.8
5.2:	KNOW HOW TO USE THE MOLE CONCEPT (6)	66.1
5.3:	KNOW HOW TO MAKE CALCULATIONS INVOLVING STOICHIOMETRY GIVEN A PERIODIC TABLE AND CALCULATOR (6)	56.4
5.4:	KNOW HOW TO MAKE CALCULATIONS FOR THE PREDICTION OF THE BEHAVIOR OF GASES (5)	44.7

NOTE: FOUR FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY OF THE 100 ITEMS WERE THE SAME ACROSS THE FOUR FORMS (CORE). THE REMAINING 40 ITEMS ON EACH OF THE FOUR FORMS VARIED BY FORM, SO THAT 220 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS. THE NUMBER OF ITEMS PER GOAL & OBJECTIVE ARE LISTED IN PARENTHESES.

Table 7, cont'd.

		STATE
GOAL 6:	UNDERSTAND FUNDAMENTAL PRINCIPLES RELATED TO CHEMICAL REACTIONS, KINETICS, AND THERMODYNAMICS (29)	52.2
6.1:	KNOW THE CONCEPT OF OXIDATION-REDUCTION (5)	51.6
6.2:	HAVE KNOWLEDGE OF BASIC PRINCIPLES IN ELECTROCHEMISTRY (7)	66.4
6.3:	HAVE KNOWLEDGE OF VARIOUS ENERGY EFFECTS IN CHEMICAL REACTIONS (6)	42.1
6.4:	KNOW FACTORS THAT AFFECT THE RATE OF A REACTION (5)	47.7
6.5:	KNOW THE CONCEPT OF DYNAMIC EQUILIBRIUM (6)	49.8
GOAL 7:	UNDERSTAND THE PROPERTIES OF ELECTROLYTE SOLUTIONS (37)	48.8
7.1:	KNOW THE IMPORTANCE OF ACIDS, BASES, AND SALTS IN INDUSTRY AND IN THE HOME (3)	***
7.2:	KNOW THE NAMES AND FORMULAS OF SELECTED ACIDS, BASES, AND SALTS (7)	52.0
7.3:	KNOW PHYSICAL CHARACTERISTICS AND CHEMICAL PROPERTIES OF SOLUTIONS OF ACIDS, BASES, AND SALTS (6)	49.5
7.4:	KNOW SELECTED EXPRESSIONS OF CONCENTRATION OF SOLUTIONS (3)	***
7.5:	HAVE A KNOWLEDGE OF THE PHENOMENON OF IONIZATION (5)	41.7
7.6:	HAVE A KNOWLEDGE OF THE ACID-BASE EQUILIBRIA AND pH (6)	46.1
7.7:	HAVE KNOWLEDGE OF SOLUBILITY EQUILIBRIA (7)	45.5
GOAL 8:	UNDERSTAND THE PRINCIPLES, REACTIONS, AND RELATED COMPOUNDS STUDIED IN ORGANIC CHEMISTRY (29)	49.3
8.1:	HAVE KNOWLEDGE OF CHEMICAL PROPERTIES, PHYSICAL FORMS, AND ATOMIC STRUCTURE OF CARBON (6)	43.6
8.2:	HAVE KNOWLEDGE OF HYBRIDIZATION AND ITS RELATIONSHIP TO BONDING AND MOLECULAR GEOMETRY (5)	41.7
8.3:	HAVE KNOWLEDGE OF HYDROCARBONS (6)	46.6
8.4:	HAVE KNOWLEDGE OF MAJOR HYDROCARBON SUBSTITUTION PRODUCTS (6)	44.0
8.5:	KNOW THAT ACTIVITIES OF LIVING THINGS INVOLVE CHEMICAL REACTIONS (6)	69.3
GOAL 9:	UNDERSTAND THE RELEVANCE OF CURRENT TOPICS IN CHEMISTRY (13)	67.8
9.1:	HAVE KNOWLEDGE OF THE RELEVANCE OF CURRENT TOPICS IN CHEMISTRY (6)	71.6
9.2:	BE AWARE OF CAREERS AVAILABLE IN CHEMISTRY (7)	64.6
	PERCENT CORRECT ALL ITEMS (220)	50.8
	AVERAGE SCORE ALL ITEMS (220)	129.3
	NUMBER OF STUDENTS TESTED	33352

NOTE: FOUR FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY OF THE 100 ITEMS WERE THE SAME ACROSS THE FOUR FORMS (CORE). THE REMAINING 40 ITEMS ON EACH OF THE FOUR FORMS VARIED BY FORM, SO THAT 220 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS. THE NUMBER OF ITEMS PER GOAL & OBJECTIVE ARE LISTED IN PARENTHESES.

APPENDIX

Chemistry Core and Goal Performance in Educational Regions and Public School Systems

Table 8 presents average performance on the 60-item core test, the 220-item curriculum test, and the goals of Chemistry for the eight educational regions. Public school system average core and goal performance are given in Table 9. School systems are arranged by educational region.

Chemistry Box and Whisker Plots of Core Scores for Educational Regions and Public School Systems

Figure 7 displays the distributions of core scores for the eight educational regions using box and whisker plots. Public school system box and whisker plots are presented in Figures 8 through 15. See the interpretive legend in Figure 1 on page 4.

Chemistry Core Performance, Participation Rates, Yield, and Effective Yield for Public School Systems: 1989

Table 10 presents participation rates, yield, effective yield, and performance on the equivalent 60-item core tests administered in 1989 for the public school systems. School systems are arranged by educational region. Comparisons among school systems should always be sensitive to the fact that the social and demographic factors which are strongly related to differences in achievement are not distributed evenly across the state. These factors influence the yield indices as well as performance. For example, school systems in high socio-economic areas should have both high participation and performance, resulting in high yield and effective yield indices. One appropriate comparison might be among school systems with similar socio-economic characteristics. Another would involve comparing yield and effective yield indices for a school system across time to look for changes in participation and performance.

Chemistry Core Scores and Participation Rates in Public School Systems

Figures 16 though 24 graphically present Chemistry core scores and participation rates (percent of class) for educational regions and public school systems. For each school system, the length of the bars representing the average core scores and class participation rates can be compared to the state averages for these measures (state averages are indicated by the vertical arrows). School systems for which both bars extend beyond the state averages have both higher than average participation in Chemistry, and above average performance on the Chemistry End-of-Course Test.

Characteristics of the Chemistry Students in Public School Systems

Select characteristics of all students in public school systems and students taking Chemistry are listed in Table 11. The percent of a class is an estimate of the percent of an entire cohort or class of students who will eventually take Chemistry in their public school career. As shown in Table 1, in North Carolina it is estimated that 38.0 percent of a class of students will take Chemistry before they graduate from high school. The ethnic distribution and parental education distribution within school systems and Chemistry classes also varied by school system. Statewide, black students and students with less educated parents appear to be underrepresented in Chemistry classes.

State Percentile Table for 1989

Table 12 gives summary statistics, the score distribution, and state percentiles for the 1989 administration of the Chemistry End-of-Course Tests. The 1989 percentiles provide a baseline to which subsequent performance on the equivalent core tests can be compared.

Table 8

1989 Regional Summary Results for Chemistry: 60-Item Core Test and 220-Item Curriculum Test

GOALS: THE LEARNER WILL UNDERSTAND:

GOAL 1: HISTORY, SCOPE, BASIC CONCEPTS, AND TECHNIQUES RELATED TO THE STUDY OF CHEMISTRY
GOAL 2: SYSTEMS OF CLASSIFICATION OF MATTER, NUCLEAR, PHYSICAL, AND CHEMICAL CHANGES
GOAL 3: DESCRIPTIVE CHEMISTRY AND PERIODIC PROPERTIES OF ELEMENTS
GOAL 4: CONCEPTS AND TECHNIQUES OF MEASUREMENT AND COMPUTATION AS THEY RELATE TO CHEMISTRY
GOAL 5: STOICHIOMETRY AND KINETIC MOLECULAR THEORY
GOAL 6: FUNDAMENTAL PRINCIPLES RELATED TO CHEMICAL REACTIONS, KINETICS, AND THERMODYNAMICS
GOAL 7: PROPERTIES OF ELECTROLYTE SOLUTIONS
GOAL 8: PRINCIPLES, REACTIONS, AND RELATED COMPOUNDS STUDIED IN ORGANIC CHEMISTRY
GOAL 9: RELEVANCE OF CURRENT TOPICS IN CHEMISTRY

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		19	37	13	19	24	29	37	29	13	60	60	220	220
NORTHEAST	1802	67.8	67.2	62.1	64.8	60.1	51.2	46.8	49.0	68.6	37.3	62.1	127.8	58.1
SOUTHEAST	3412	68.1	67.5	61.9	63.4	60.4	51.4	48.8	49.0	67.8	37.3	62.2	128.5	58.4
CENTRAL	5990	70.1	70.5	65.0	66.6	64.6	54.9	53.0	50.9	69.8	39.1	65.1	135.4	61.5
SOUTH CENTRAL	3838	65.8	65.3	58.9	60.6	55.9	48.8	46.0	47.5	65.0	35.4	59.0	122.6	55.7
NORTH CENTRAL	6298	69.7	68.4	62.5	65.3	59.3	52.0	47.8	50.0	68.5	37.5	62.5	129.5	58.9
SOUTHWEST	6304	67.0	66.9	61.6	61.3	59.4	51.7	48.3	48.1	65.6	36.7	61.2	126.7	57.6
NORTHWEST	2978	70.0	69.0	63.5	66.3	61.1	53.2	48.3	50.7	68.8	38.1	63.5	131.3	59.7
WESTERN	2730	69.6	69.2	62.8	65.6	60.9	52.8	48.7	48.5	69.4	38.1	63.5	130.5	59.3

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THAT GOAL. FOUR FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY OF THE 100 ITEMS WERE COMMON ACROSS THE FOUR FORMS (CORE). THE REMAINING 40 ITEMS VARIED BY FORM, SO THAT 220 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS.

Table 9

REGION NORTHEAST

1989 School System Summary Results for Chemistry: 60-Item Core Test and 220-Item Curriculum Test

GOALS: THE LEARNER WILL UNDERSTAND:

GOAL 1: HISTORY, SCOPE, BASIC CONCEPTS, AND TECHNIQUES RELATED TO THE STUDY OF CHEMISTRY
GOAL 2: SYSTEMS OF CLASSIFICATION OF MATTER, NUCLEAR, PHYSICAL, AND CHEMICAL CHANGES
GOAL 3: DESCRIPTIVE CHEMISTRY AND PERIODIC PROPERTIES OF ELEMENTS
GOAL 4: CONCEPTS AND TECHNIQUES OF MEASUREMENT AND COMPUTATION AS THEY RELATE TO CHEMISTRY
GOAL 5: STOICHIOMETRY AND KINETIC MOLECULAR THEORY
GOAL 6: FUNDAMENTAL PRINCIPLES RELATED TO CHEMICAL REACTIONS, KINETICS, AND THERMODYNAMICS
GOAL 7: PROPERTIES OF ELECTROLYTE SOLUTIONS
GOAL 8: PRINCIPLES, REACTIONS, AND RELATED COMPOUNDS STUDIED IN ORGANIC CHEMISTRY
GOAL 9: RELEVANCE OF CURRENT TOPICS IN CHEMISTRY

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		19	37	13	19	24	29	37	29	13	60	60	220	220
BEAUFORT COUNTY	77	64.1	65.4	61.7	65.5	61.8	52.5	46.6	47.3	69.6	37.4	62.4	126.9	57.7
WASHINGTON CITY	135	68.5	65.5	66.9	63.2	61.7	47.2	45.0	46.8	66.4	37.1	61.9	125.3	57.0
BERTIE COUNTY	60	66.1	66.1	54.7	57.5	55.1	42.8	38.1	39.6	64.6	35.2	58.7	114.6	52.1
CAMDEN COUNTY	35	75.7	76.2	68.0	68.0	65.1	47.0	48.3	50.8	74.7	39.2	65.3	135.9	61.8
CHOWAN COUNTY	83	70.3	69.3	63.7	70.3	60.2	53.6	51.6	52.3	71.4	38.3	63.8	134.1	61.0
CURRITUCK COUNTY	51	76.3	74.1	69.9	80.0	64.7	59.9	48.9	58.1	72.2	41.2	68.7	143.4	65.2
DARE COUNTY	88	74.3	72.0	69.2	67.3	57.3	54.9	53.7	57.8	73.3	38.9	64.9	138.4	62.9
GATES COUNTY	60	65.7	64.6	62.8	63.6	53.4	47.8	43.4	47.6	69.1	36.2	60.3	122.2	55.5
HERTFORD COUNTY	155	60.1	60.2	55.6	53.7	54.8	45.5	41.5	44.5	60.4	32.7	54.5	113.5	51.6
HYDE COUNTY	16	63.1	69.3	52.8	58.5	57.2	50.7	39.9	45.8	71.5	37.7	62.8	121.3	55.1
MARTIN COUNTY	148	64.3	66.9	62.9	63.1	62.4	55.2	51.8	49.4	64.4	38.7	64.4	130.0	59.1
PASQUOTANK COUNTY	148	70.1	70.5	66.1	67.2	60.1	49.2	39.1	55.2	68.4	37.3	62.1	128.8	58.6
PERQUIMANS COUNTY	58	64.6	[illegible]5	54.7	56.7	51.6	48.4	46.2	47.7	67.9	33.5	55.9	118.7	53.9
PITT COUNTY	595	69.0	68.2	60.8	67.3	62.4	52.4	47.7	48.5	71.1	38.1	63.4	130.1	59.2
TYRRELL COUNTY	17	66.5	63.7	62.2	68.9	60.4	48.3	37.8	44.4	67.1	35.2	58.6	121.5	55.2
WASHINGTON COUNTY	76	66.4	64.6	59.8	60.2	54.7	55.3	55.3	44.4	63.6	37.2	62.0	126.5	57.5

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THAT GOAL. FOUR FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY OF THE 100 ITEMS WERE COMMON ACROSS THE FOUR FORMS (CORE). THE REMAINING 40 ITEMS VARIED BY FORM, SO THAT 220 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS.

Table 9, cont'd.

REGION SOUTHEAST

GOALS: THE LEARNER WILL UNDERSTAND:

GOAL 1: HISTORY, SCOPE, BASIC CONCEPTS, AND TECHNIQUES RELATED TO THE STUDY OF CHEMISTRY
GOAL 2: SYSTEMS OF CLASSIFICATION OF MATTER, NUCLEAR, PHYSICAL, AND CHEMICAL CHANGES
GOAL 3: DESCRIPTIVE CHEMISTRY AND PERIODIC PROPERTIES OF ELEMENTS
GOAL 4: CONCEPTS AND TECHNIQUES OF MEASUREMENT AND COMPUTATION AS THEY RELATE TO CHEMISTRY
GOAL 5: STOICHIOMETRY AND KINETIC MOLECULAR THEORY
GOAL 6: FUNDAMENTAL PRINCIPLES RELATED TO CHEMICAL REACTIONS, KINETICS, AND THERMODYNAMICS
GOAL 7: PROPERTIES OF ELECTROLYTE SOLUTIONS
GOAL 8: PRINCIPLES, REACTIONS, AND RELATED COMPOUNDS STUDIED IN ORGANIC CHEMISTRY
GOAL 9: RELEVANCE OF CURRENT TOPICS IN CHEMISTRY

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		19	37	13	19	24	29	37	29	13	60	60	220	220
BRUNSWICK COUNTY	236	68.0	66.0	58.3	60.8	57.7	45.4	43.2	46.9	70.7	35.5	59.2	122.2	55.6
CARTERET COUNTY	234	72.6	71.0	62.2	63.8	62.2	50.8	51.7	49.7	68.0	38.5	64.2	132.3	60.1
NEW BERN-CRAVEN	361	70.1	71.3	66.6	65.1	64.1	58.8	53.7	56.6	71.1	40.1	66.8	138.7	63.0
DUPLIN COUNTY	197	68.5	67.3	63.2	61.9	61.7	51.3	47.3	50.2	68.2	36.8	61.4	128.5	58.4
GREENE COUNTY	86	63.5	69.3	61.5	64.1	62.8	53.1	49.6	61.0	62.4	38.5	64.1	132.5	60.2
JONES COUNTY	48	58.0	53.9	51.8	52.0	42.8	44.7	31.6	39.1	60.1	29.8	49.7	101.7	46.2
LENOIR COUNTY	174	66.6	68.6	63.0	65.8	58.2	51.3	51.4	44.3	69.1	37.5	62.4	128.4	58.4
KINSTON CITY	103	67.9	71.4	68.0	76.4	72.6	61.6	62.3	48.7	69.6	40.9	68.2	144.2	65.5
NEW HANOVER COUNT	730	72.6	71.3	63.5	66.8	64.6	52.8	51.3	49.0	71.6	39.3	65.5	134.4	61.1
ONSLOW COUNTY	383	69.8	68.1	64.2	66.6	60.2	54.1	50.9	51.0	67.5	38.4	64.0	132.0	60.0
PAMLICO COUNTY	52	63.5	63.9	53.5	65.4	63.6	53.6	49.1	52.7	62.8	37.2	62.1	127.5	58.0
PENDER COUNTY	92	61.5	63.1	60.5	60.7	57.2	48.7	46.2	49.4	61.0	34.9	58.2	121.6	55.3
SAMPSON COUNTY	126	62.5	61.1	58.2	53.6	53.3	45.6	42.1	42.3	65.4	33.6	56.1	114.6	52.1
CLINTON CITY	41	68.9	63.8	58.7	67.0	61.9	46.2	46.5	48.0	70.9	37.5	62.5	125.7	57.1
WAYNE COUNTY	424	63.7	62.6	59.0	57.2	53.0	48.5	43.6	47.1	64.8	34.3	57.2	118.8	54.0
GOLDSBORO CITY	125	58.6	58.2	53.3	54.8	55.3	38.2	40.1	35.8	51.0	30.9	51.5	106.2	48.3

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THAT GOAL. FOUR FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY OF THE 100 ITEMS WERE COMMON ACROSS THE FOUR FORMS (CORE). THE REMAINING 40 ITEMS VARIED BY FORM, SO THAT 220 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS.

Table 9, cont'd.

REGION CENTRAL

REGION REPORT

GOALS: THE LEARNER WILL UNDERSTAND:

GOAL 1: HISTORY, SCOPE, BASIC CONCEPTS, AND TECHNIQUES RELATED TO THE STUDY OF CHEMISTRY
GOAL 2: SYSTEMS OF CLASSIFICATION OF MATTER, NUCLEAR, PHYSICAL, AND CHEMICAL CHANGES
GOAL 3: DESCRIPTIVE CHEMISTRY AND PERIODIC PROPERTIES OF ELEMENTS
GOAL 4: CONCEPTS AND TECHNIQUES OF MEASUREMENT AND COMPUTATION AS THEY RELATE TO CHEMISTRY
GOAL 5: STOICHIOMETRY AND KINETIC MOLECULAR THEORY
GOAL 6: FUNDAMENTAL PRINCIPLES RELATED TO CHEMICAL REACTIONS, KINETICS, AND THERMODYNAMICS
GOAL 7: PROPERTIES OF ELECTROLYTE SOLUTIONS
GOAL 8: PRINCIPLES, REACTIONS, AND RELATED COMPOUNDS STUDIED IN ORGANIC CHEMISTRY
GOAL 9: RELEVANCE OF CURRENT TOPICS IN CHEMISTRY

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		19	37	13	19	24	29	37	29	13	60	60	220	220
DURHAM COUNTY	643	73.8	75.2	66.7	72.2	67.8	56.7	54.8	55.5	73.6	40.8	68.1	142.9	65.0
DURHAM CITY	241	59.6	59.8	54.9	56.3	54.3	40.3	40.2	41.0	55.7	32.6	54.3	110.0	50.0
EDGECOMBE COUNTY	173	55.8	58.1	52.2	53.4	55.5	41.7	49.1	41.5	61.5	32.2	53.7	112.6	51.2
TARBORO CITY	114	67.4	67.4	59.9	63.5	59.6	49.6	51.4	44.6	66.8	36.9	61.5	127.0	57.7
FRANKLIN COUNTY	96	66.0	69.3	67.3	61.6	62.1	54.0	50.4	53.8	70.4	38.3	63.9	132.6	60.3
FRANKLINTON CITY	19	64.3	66.7	60.5	57.3	51.2	41.5	45.5	45.5	65.7	33.9	56.5	118.5	53.9
GRANVILLE COUNTY	221	68.2	67.1	62.8	58.9	58.0	51.8	48.0	43.9	66.7	37.1	61.8	125.2	56.9
HALIFAX COUNTY	145	63.9	59.0	59.2	49.9	51.8	41.6	39.0	39.6	56.8	32.6	54.3	108.9	49.5
ROANOKE RPDS CITY	54	77.4	84.5	77.4	74.0	72.6	67.8	64.0	69.7	75.0	44.7	74.6	160.8	73.1
WELDON CITY	42	55.1	47.6	44.4	41.6	43.1	32.7	31.1	33.2	44.8	25.7	42.8	88.6	40.3
JOHNSTON COUNTY	463	70.9	71.0	65.4	67.9	66.5	56.6	52.5	54.8	71.6	40.0	66.6	138.2	62.8
NASH COUNTY	329	70.5	69.3	62.0	65.6	60.8	59.1	51.4	49.8	71.2	38.4	64.0	134.0	60.9
ROCKY MOUNT CITY	142	74.3	72.2	65.8	70.0	69.8	60.9	60.2	54.8	69.5	41.1	68.6	144.3	65.6
NORTHAMPTON COUNT	130	63.2	63.4	64.0	55.4	56.8	48.5	51.3	48.9	64.3	35.5	59.1	123.6	56.2
VANCE COUNTY	172	64.9	67.3	62.9	61.1	56.9	50.5	43.7	47.6	67.1	35.2	58.7	124.0	56.4
WAKE COUNTY	2589	72.3	73.1	67.8	70.1	68.1	57.9	56.1	52.6	72.9	40.8	68.0	141.5	64.3
WARREN COUNTY	40	65.4	66.6	54.6	51.8	62.6	49.7	50.3	46.4	68.9	36.3	60.6	124.4	56.6
WILSON COUNTY	377	70.4	69.7	64.4	67.1	63.9	53.4	54.1	49.2	64.7	38.9	64.9	133.8	60.8

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THAT GOAL. FOUR FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY OF THE 100 ITEMS WERE COMMON ACROSS THE FOUR FORMS (CORE). THE REMAINING 40 ITEMS VARIED BY FORM, SO THAT 220 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS.

Table 9, cont'd.

REGION SOUTH CENTRAL

REGION REPORT

GOALS: THE LEARNER WILL UNDERSTAND:

GOAL 1: HISTORY, SCOPE, BASIC CONCEPTS, AND TECHNIQUES RELATED TO THE STUDY OF CHEMISTRY
GOAL 2: SYSTEMS OF CLASSIFICATION OF MATTER, NUCLEAR, PHYSICAL, AND CHEMICAL CHANGES
GOAL 3: DESCRIPTIVE CHEMISTRY AND PERIODIC PROPERTIES OF ELEMENTS
GOAL 4: CONCEPTS AND TECHNIQUES OF MEASUREMENT AND COMPUTATION AS THEY RELATE TO CHEMISTRY
GOAL 5: STOICHIOMETRY AND KINETIC MOLECULAR THEORY
GOAL 6: FUNDAMENTAL PRINCIPLES RELATED TO CHEMICAL REACTIONS, KINETICS, AND THERMODYNAMICS
GOAL 7: PROPERTIES OF ELECTROLYTE SOLUTIONS
GOAL 8: PRINCIPLES, REACTIONS, AND RELATED COMPOUNDS STUDIED IN ORGANIC CHEMISTRY
GOAL 9: RELEVANCE OF CURRENT TOPICS IN CHEMISTRY

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		19	37	13	19	24	29	37	29	13	60	60	220	220
BLADEN COUNTY	168	62.5	63.4	61.0	51.2	51.6	44.0	40.8	47.4	61.9	33.3	55.5	115.1	52.3
COLUMBUS COUNTY	106	61.6	63.9	59.7	58.5	37.0	49.0	43.6	48.0	64.6	34.4	57.4	120.5	54.8
WHITEVILLE CITY	78	70.1	69.3	64.9	66.0	60.3	51.7	47.6	49.0	66.2	38.2	63.6	129.8	59.0
CUMBERLAND COUNTY	1479	67.6	67.2	57.9	63.1	57.7	51.0	49.0	49.3	66.8	36.3	60.5	126.9	57.7
HARNETT COUNTY	279	63.2	64.5	59.4	58.9	53.3	45.1	41.3	48.3	65.7	33.9	56.5	118.5	53.9
HOKE COUNTY	99	61.5	63.2	60.1	63.7	56.6	51.5	45.3	46.5	62.6	35.1	58.4	121.9	55.4
LEE COUNTY	196	63.9	67.2	58.1	57.0	58.9	51.1	48.5	54.3	65.0	36.3	60.5	126.5	57.5
MONTGOMERY COUNTY	156	67.1	60.9	58.3	60.6	53.7	49.3	49.4	43.1	63.9	36.6	61.0	120.7	54.8
MOORE COUNTY	255	68.2	69.0	62.5	64.1	57.4	49.2	44.0	47.6	69.1	37.0	61.7	125.9	57.2
RICHMOND COUNTY	215	65.5	60.8	56.5	58.6	51.5	47.5	43.5	42.0	65.1	34.3	57.2	116.3	52.9
ROBESON COUNTY	380	60.6	59.9	57.2	53.6	50.3	42.8	40.7	42.5	58.2	31.8	53.0	110.8	50.3
FAIRMONT CITY	67	57.2	55.9	55.4	54.3	56.4	42.6	39.4	43.2	58.3	31.6	52.7	109.7	49.8
LUMBERTON CITY	180	67.9	65.7	57.1	59.5	54.2	45.0	42.0	41.0	61.4	35.0	58.4	117.4	53.4
RED SPRINGS	30	66.5	69.0	67.7	58.1	67.2	53.0	52.0	55.6	59.4	38.2	63.7	132.6	60.3
SAINT PAULS CITY	31	69.9	68.8	68.1	66.2	49.9	47.8	42.6	49.6	80.0	36.2	60.3	126.5	57.5
SCOTLAND COUNTY	119	74.2	69.7	65.3	70.2	62.3	57.3	53.8	51.5	67.8	39.4	65.7	136.9	62.2

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Table 9, cont'd.

REGION NORTH CENTRAL

REGION REPORT

GOALS: THE LEARNER WILL UNDERSTAND:

GOAL 1: HISTORY, SCOPE, BASIC CONCEPTS, AND TECHNIQUES RELATED TO THE STUDY OF CHEMISTRY
GOAL 2: SYSTEMS OF CLASSIFICATION OF MATTER, NUCLEAR, PHYSICAL, AND CHEMICAL CHANGES
GOAL 3: DESCRIPTIVE CHEMISTRY AND PERIODIC PROPERTIES OF ELEMENTS
GOAL 4: CONCEPTS AND TECHNIQUES OF MEASUREMENT AND COMPUTATION AS THEY RELATE TO CHEMISTRY
GOAL 5: STOICHIOMETRY AND KINETIC MOLECULAR THEORY
GOAL 6: FUNDAMENTAL PRINCIPLES RELATED TO CHEMICAL REACTIONS, KINETICS, AND THERMODYNAMICS
GOAL 7: PROPERTIES OF ELECTROLYTE SOLUTIONS
GOAL 8: PRINCIPLES, REACTIONS, AND RELATED COMPOUNDS STUDIED IN ORGANIC CHEMISTRY
GOAL 9: RELEVANCE OF CURRENT TOPICS IN CHEMISTRY

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		19	37	13	19	24	29	37	29	13	60	60	220	220
ALAMANCE COUNTY	358	70.9	68.1	63.3	60.7	55.3	53.6	47.5	46.8	66.8	36.6	61.0	127.1	57.8
BURLINGTON CITY	263	72.4	68.3	60.6	67.9	58.6	50.3	45.1	51.9	68.4	37.5	62.5	129.1	58.7
CASWELL COUNTY	131	63.3	59.9	59.9	53.8	47.1	43.3	37.9	44.8	61.5	32.2	53.7	111.1	50.5
CHATHAM COUNTY	153	73.8	73.1	66.7	69.8	63.7	53.6	48.9	51.1	71.9	39.7	66.1	136.1	61.9
DAVIDSON COUNTY	587	66.9	65.1	59.0	59.8	55.4	48.6	45.2	42.9	64.2	36.1	60.1	120.7	54.9
LEXINGTON CITY	74	71.3	70.4	59.6	66.6	61.4	49.6	43.0	50.3	68.4	37.1	61.8	128.5	58.4
THOMASVILLE CITY	66	63.2	64.9	54.0	55.9	56.4	44.4	40.3	43.3	64.4	33.6	56.0	115.9	52.7
FORSYTH COUNTY	1134	71.9	69.8	63.7	70.8	60.2	52.9	46.7	53.5	70.4	38.2	63.7	133.0	60.4
GUILFORD COUNTY	903	70.8	68.4	62.5	65.1	58.2	53.1	49.0	51.1	70.3	37.9	63.1	130.7	59.4
GREENSBORO CITY	809	70.8	70.6	64.1	65.3	63.1	51.0	50.7	50.3	68.2	37.7	62.9	132.5	60.2
HIGH POINT CITY	193	74.5	74.2	72.5	65.5	66.9	64.1	59.0	66.5	74.1	42.2	70.3	148.9	67.7
ORANGE COUNTY	130	67.1	65.8	62.6	66.0	56.2	51.3	47.8	44.8	69.0	37.2	62.0	125.8	57.2
CHAPEL HILL CITY	299	71.0	73.0	62.2	73.4	66.3	56.6	54.3	50.4	70.8	40.5	67.5	138.7	63.1
PERSON COUNTY	122	72.4	73.1	66.2	68.5	66.1	65.9	55.5	56.7	66.1	40.9	68.2	143.0	65.0
RANDOLPH COUNTY	306	64.6	62.7	56.1	59.4	54.9	49.9	42.6	46.8	66.8	34.9	58.1	119.6	54.4
ASHEBORO CITY	112	75.6	73.4	64.2	70.7	68.9	55.0	49.0	46.9	71.4	40.3	67.2	136.8	62.2
ROCKINGHAM COUNTY	110	65.8	65.7	65.6	61.6	56.2	50.4	43.0	50.4	67.3	36.7	61.1	124.4	56.6
EDEN CITY	150	63.8	64.2	56.9	64.5	56.5	47.5	51.0	49.0	66.6	34.9	58.1	124.6	56.6
WEST. ROCKINGHAM	129	66.6	62.7	61.6	63.9	58.0	49.6	41.5	45.6	65.5	36.1	60.1	121.4	55.2
REIDSVILLE CITY	84	68.6	64.4	65.9	62.3	54.9	46.9	43.3	44.5	65.0	35.9	59.9	121.4	55.2
STOKES COUNTY	185	59.2	66.1	63.2	58.3	54.9	45.9	45.4	48.0	67.5	35.6	59.4	120.9	55.0

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Table 9, cont'd.

REGION SOUTHWEST

REGION REPORT

GOALS: THE LEARNER WILL UNDERSTAND:

GOAL 1: HISTORY, SCOPE, BASIC CONCEPTS, AND TECHNIQUES RELATED TO THE STUDY OF CHEMISTRY
GOAL 2: SYSTEMS OF CLASSIFICATION OF MATTER, NUCLEAR, PHYSICAL, AND CHEMICAL CHANGES
GOAL 3: DESCRIPTIVE CHEMISTRY AND PERIODIC PROPERTIES OF ELEMENTS
GOAL 4: CONCEPTS AND TECHNIQUES OF MEASUREMENT AND COMPUTATION AS THEY RELATE TO CHEMISTRY
GOAL 5: STOICHIOMETRY AND KINETIC MOLECULAR THEORY
GOAL 6: FUNDAMENTAL PRINCIPLES RELATED TO CHEMICAL REACTIONS, KINETICS, AND THERMODYNAMICS
GOAL 7: PROPERTIES OF ELECTROLYTE SOLUTIONS
GOAL 8: PRINCIPLES, REACTIONS, AND RELATED COMPOUNDS STUDIED IN ORGANIC CHEMISTRY
GOAL 9: RELEVANCE OF CURRENT TOPICS IN CHEMISTRY

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		19	37	13	19	24	29	37	29	13	60	60	220	220
ANSON COUNTY	139	57.3	61.6	62.1	49.4	51.3	45.9	40.8	43.2	59.2	31.8	53.0	112.1	51.0
CABARRUS COUNTY	412	68.0	66.7	61.4	63.8	56.1	51.2	46.1	45.5	66.6	36.7	61.2	125.0	56.8
KANNAPOLIS CITY	144	62.1	60.5	50.2	54.7	52.4	46.7	43.3	40.4	54.0	32.7	54.5	112.0	50.9
CLEVELAND COUNTY	240	67.9	67.0	60.9	59.5	62.3	50.5	48.8	49.6	64.1	36.4	60.7	127.3	57.9
KINGS MTN. CITY	106	65.8	69.6	59.8	59.6	56.9	55.9	45.6	50.7	65.6	36.3	60.5	127.3	57.9
SHELBY CITY	198	71.6	74.6	66.0	65.5	63.0	58.0	52.6	53.5	67.6	40.6	67.7	137.9	62.7
GASTON COUNTY	986	63.1	63.8	60.1	56.5	56.4	47.9	45.5	44.6	62.5	34.8	58.0	119.5	54.3
LINCOLN COUNTY	224	66.6	65.8	61.7	60.8	59.1	47.6	48.4	44.3	63.3	36.3	60.4	123.6	56.2
MECKLENBURG COUNT	2653	68.5	67.5	61.5	62.4	60.5	52.9	49.3	49.4	67.1	37.1	61.9	129.0	58.6
ROWAN COUNTY	412	65.3	64.4	59.6	58.7	57.7	48.3	46.0	46.2	63.6	35.7	59.5	121.7	55.3
SALISBURY CITY	112	67.1	63.6	66.2	63.7	58.1	45.9	45.2	48.0	63.6	36.5	60.9	123.2	56.0
STANLY COUNTY	156	67.7	68.0	60.1	65.1	61.9	55.2	57.2	47.5	71.4	38.7	64.6	133.3	60.6
ALBEMARLE CITY	75	64.4	76.8	69.3	56.5	61.9	53.4	53.6	60.0	69.4	40.1	66.9	137.0	62.3
UNION COUNTY	355	72.7	74.4	70.1	73.8	67.6	59.1	52.6	53.6	72.3	41.4	69.0	142.2	64.6
MONROE CITY	92	59.2	63.0	59.8	54.8	55.0	52.9	50.2	44.9	58.8	35.1	58.4	120.5	54.8

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Table 9, cont'd.

REGION NORTHWEST

REGION REPORT

GOALS: THE LEARNER WILL UNDERSTAND:

GOAL 1: HISTORY, SCOPE, BASIC CONCEPTS, AND TECHNIQUES RELATED TO THE STUDY OF CHEMISTRY
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GOAL 6: FUNDAMENTAL PRINCIPLES RELATED TO CHEMICAL REACTIONS, KINETICS, AND THERMODYNAMICS
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	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		19	37	13	19	24	29	37	29	13	60	60	220	220
ALEXANDER COUNTY	180	65.1	63.5	56.0	63.5	52.8	43.4	39.7	42.9	61.0	34.4	57.4	115.5	52.5
ALLEGHANY COUNTY	58	69.0	68.0	66.8	57.1	64.6	54.1	46.5	52.5	68.5	39.1	65.2	130.3	59.2
ASHE COUNTY	75	71.0	68.6	68.0	69.2	60.7	53.8	46.5	49.8	74.1	39.1	65.2	132.3	60.1
AVERY COUNTY	54	74.3	72.6	64.7	62.3	50.7	55.9	51.8	59.4	73.8	38.4	63.9	135.6	61.6
BURKE COUNTY	279	70.9	70.1	62.4	68.2	67.2	54.2	53.0	50.6	68.6	39.8	66.4	135.5	61.6
CALDWELL COUNTY	197	72.4	71.3	63.1	75.2	64.0	61.4	57.3	54.9	73.3	40.6	67.7	142.4	64.7
CATAWBA COUNTY	343	71.6	70.1	67.1	73.7	65.9	53.5	48.3	52.9	70.2	39.8	66.3	135.9	61.8
HICKORY CITY	141	75.2	77.4	69.7	71.5	67.5	61.6	57.0	62.3	74.9	41.3	68.9	148.6	67.5
NEWTON CITY	83	71.0	72.4	69.8	70.5	62.9	58.6	53.3	57.7	71.2	40.2	66.9	140.5	63.9
DAVIE COUNTY	141	74.5	73.9	69.4	63.6	65.5	58.0	55.4	55.6	72.3	41.5	69.2	141.2	64.2
IREDELL COUNTY	337	65.3	62.6	58.7	57.2	52.4	45.6	39.5	44.7	62.8	33.9	56.5	115.6	52.5
MOORESVILLE CITY	52	67.6	75.8	68.6	79.2	74.0	66.2	60.6	52.5	71.2	42.7	71.1	148.7	67.6
STATESVILLE CITY	110	64.6	62.0	56.6	59.8	56.3	47.6	42.3	43.9	64.8	34.3	57.2	118.1	53.7
SURRY COUNTY	287	66.7	65.2	63.9	59.4	53.6	46.7	40.8	49.9	65.8	34.7	57.8	120.9	55.0
ELKIN CITY	36	74.4	70.5	76.1	71.8	60.9	47.5	48.7	53.4	74.2	38.2	63.6	135.3	61.5
MOUNT AIRY CITY	77	72.9	71.6	66.4	71.8	67.7	63.5	48.1	48.0	63.2	39.9	66.5	137.2	62.4
WATAUGA COUNTY	113	77.7	73.5	66.0	75.6	68.8	60.4	58.9	51.2	74.4	41.3	68.9	145.2	66.0
WILKES COUNTY	292	70.1	71.0	59.7	64.8	62.8	56.2	50.2	49.7	70.9	38.5	64.2	133.2	60.6
YADKIN COUNTY	123	69.9	67.2	61.6	62.0	57.8	47.1	43.4	49.1	69.6	37.0	61.7	124.8	56.7

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THAT GOAL. FOUR FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY OF THE 100 ITEMS WERE COMMON ACROSS THE FOUR FORMS (CORE). THE REMAINING 40 ITEMS VARIED BY FORM, SO THAT 220 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS.

Table 9, cont'd.

REGION WESTERN

REGION REPORT

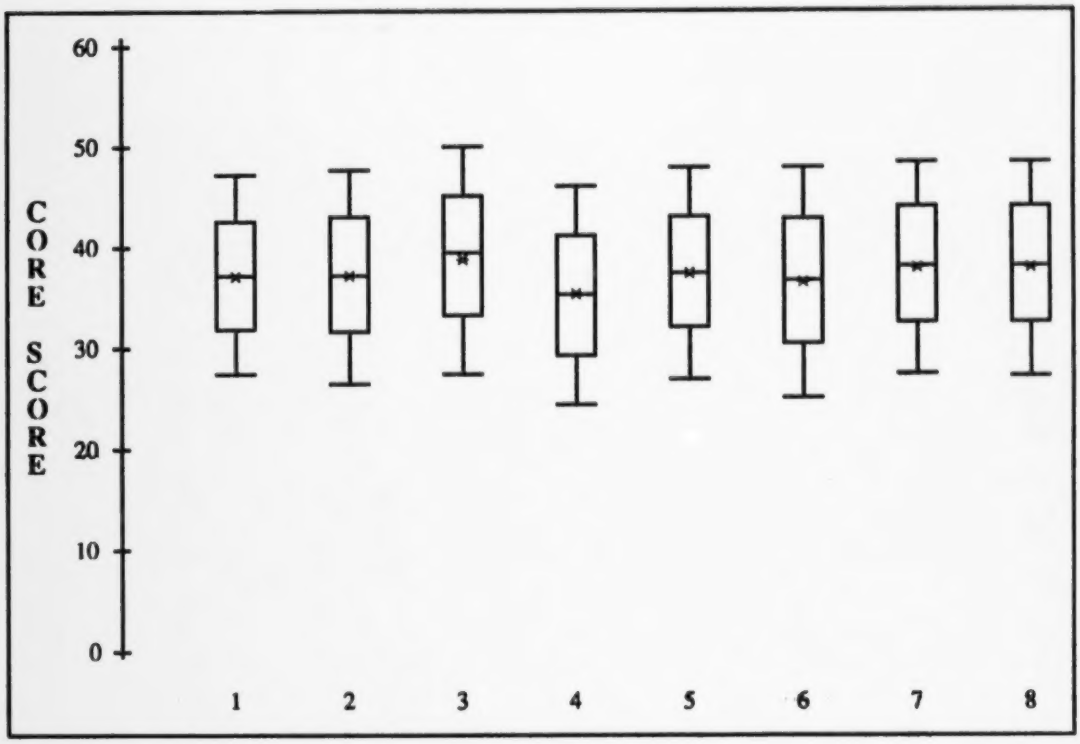
GOALS: THE LEARNER WILL UNDERSTAND:

GOAL 1: HISTORY, SCOPE, BASIC CONCEPTS, AND TECHNIQUES RELATED TO THE STUDY OF CHEMISTRY
GOAL 2: SYSTEMS OF CLASSIFICATION OF MATTER, NUCLEAR, PHYSICAL, AND CHEMICAL CHANGES
GOAL 3: DESCRIPTIVE CHEMISTRY AND PERIODIC PROPERTIES OF ELEMENTS
GOAL 4: CONCEPTS AND TECHNIQUES OF MEASUREMENT AND COMPUTATION AS THEY RELATE TO CHEMISTRY
GOAL 5: STOICHIOMETRY AND KINETIC MOLECULAR THEORY
GOAL 6: FUNDAMENTAL PRINCIPLES RELATED TO CHEMICAL REACTIONS, KINETICS, AND THERMODYNAMICS
GOAL 7: PROPERTIES OF ELECTROLYTE SOLUTIONS
GOAL 8: PRINCIPLES, REACTIONS, AND RELATED COMPOUNDS STUDIED IN ORGANIC CHEMISTRY
GOAL 9: RELEVANCE OF CURRENT TOPICS IN CHEMISTRY

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		19	37	13	19	24	29	37	29	13	60	60	220	220
BUNCOMBE COUNTY	674	70.6	68.6	60.9	67.6	60.5	51.9	46.6	47.1	68.9	37.9	63.2	129.0	58.6
ASHEVILLE CITY	133	74.7	75.1	67.6	71.3	70.4	61.3	51.1	44.3	66.0	41.1	68.5	139.3	63.3
CHEROKEE COUNTY	137	66.6	66.7	61.9	62.5	57.8	50.3	48.6	43.8	69.2	37.5	62.5	125.4	57.0
CLAY COUNTY	23	76.9	76.0	73.8	71.8	72.1	66.1	55.5	59.6	78.6	43.5	72.5	150.5	68.4
GRAHAM COUNTY	41	59.4	61.2	57.5	60.4	47.1	40.4	37.9	43.3	65.6	33.2	55.3	111.0	50.5
HAYWOOD COUNTY	221	66.3	66.9	58.8	65.1	58.8	48.4	43.6	44.7	69.3	36.6	61.0	123.6	56.2
HENDERSON COUNTY	236	67.5	70.1	61.0	64.5	58.9	53.2	51.6	52.0	67.1	37.3	62.2	131.4	59.7
HENDRSNVLLE CITY	76	62.3	65.8	57.4	65.5	61.0	48.7	46.7	43.7	69.5	35.6	59.4	123.8	56.3
JACKSON COUNTY	145	72.2	69.4	68.3	71.2	67.9	57.7	53.0	49.9	73.4	40.4	67.4	138.4	62.9
MACON COUNTY	137	73.4	71.2	63.1	64.4	61.2	51.8	55.1	56.0	71.4	39.2	65.3	136.3	62.0
MADISON COUNTY	94	62.2	63.3	59.0	52.2	48.9	43.4	33.5	42.5	67.1	33.4	55.7	110.6	50.3
MCDOWELL COUNTY	190	68.2	67.8	64.4	58.3	60.4	50.9	46.8	53.0	68.8	37.1	61.8	128.4	58.4
MITCHELL COUNTY	54	71.7	74.6	68.1	69.3	60.9	57.7	60.7	49.5	74.2	41.3	68.8	141.1	64.1
POLK COUNTY	50	71.0	68.3	58.1	63.3	60.4	47.1	41.8	40.8	67.4	38.1	63.5	122.5	55.7
RUTHERFORD COUNTY	199	71.6	73.7	70.2	71.2	65.6	56.7	53.3	55.4	70.8	40.0	66.6	140.7	64.0
SWAIN COUNTY	73	74.0	71.9	69.0	58.7	56.4	51.0	43.5	44.2	70.1	38.3	63.8	127.1	57.8
TRANSYLVANIA COUN	172	76.6	74.2	66.9	70.1	67.7	65.9	61.7	55.0	74.4	42.4	70.7	147.8	67.2
YANCEY COUNTY	75	57.9	57.6	48.9	57.3	49.2	41.9	38.7	37.8	61.0	31.2	52.0	106.7	48.5

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THAT GOAL. FOUR FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY OF THE 100 ITEMS WERE COMMON ACROSS THE FOUR FORMS (CORE). THE REMAINING 40 ITEMS VARIED BY FORM, SO THAT 220 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS.

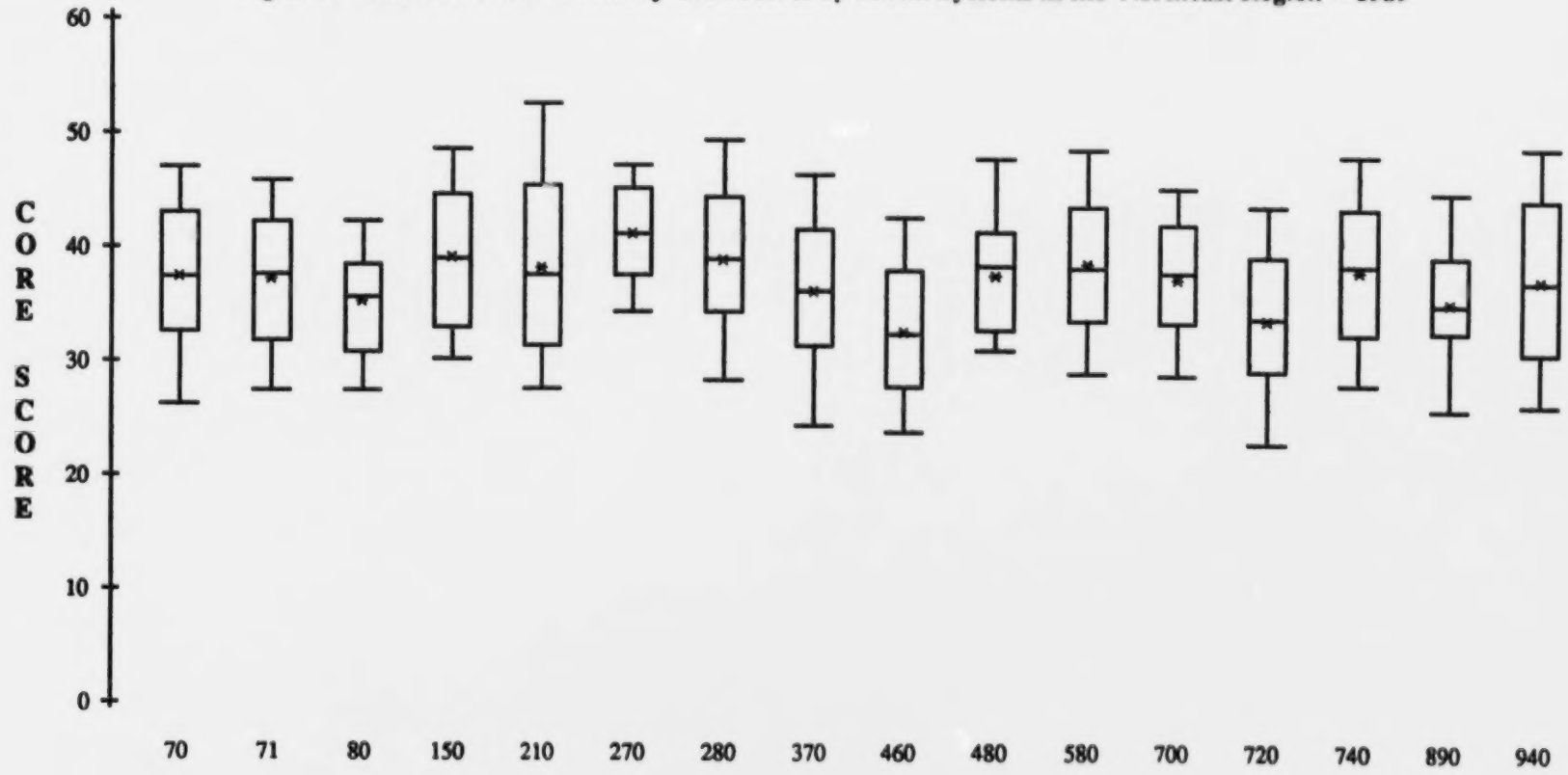
Figure 7. Distributions of Chemistry Core Scores by Regions -- 1989



Regions :

1 Northeast	5 North Central
2 Southeast	6 Southwest
3 Central	7 Northwest
4 South Central	8 Western

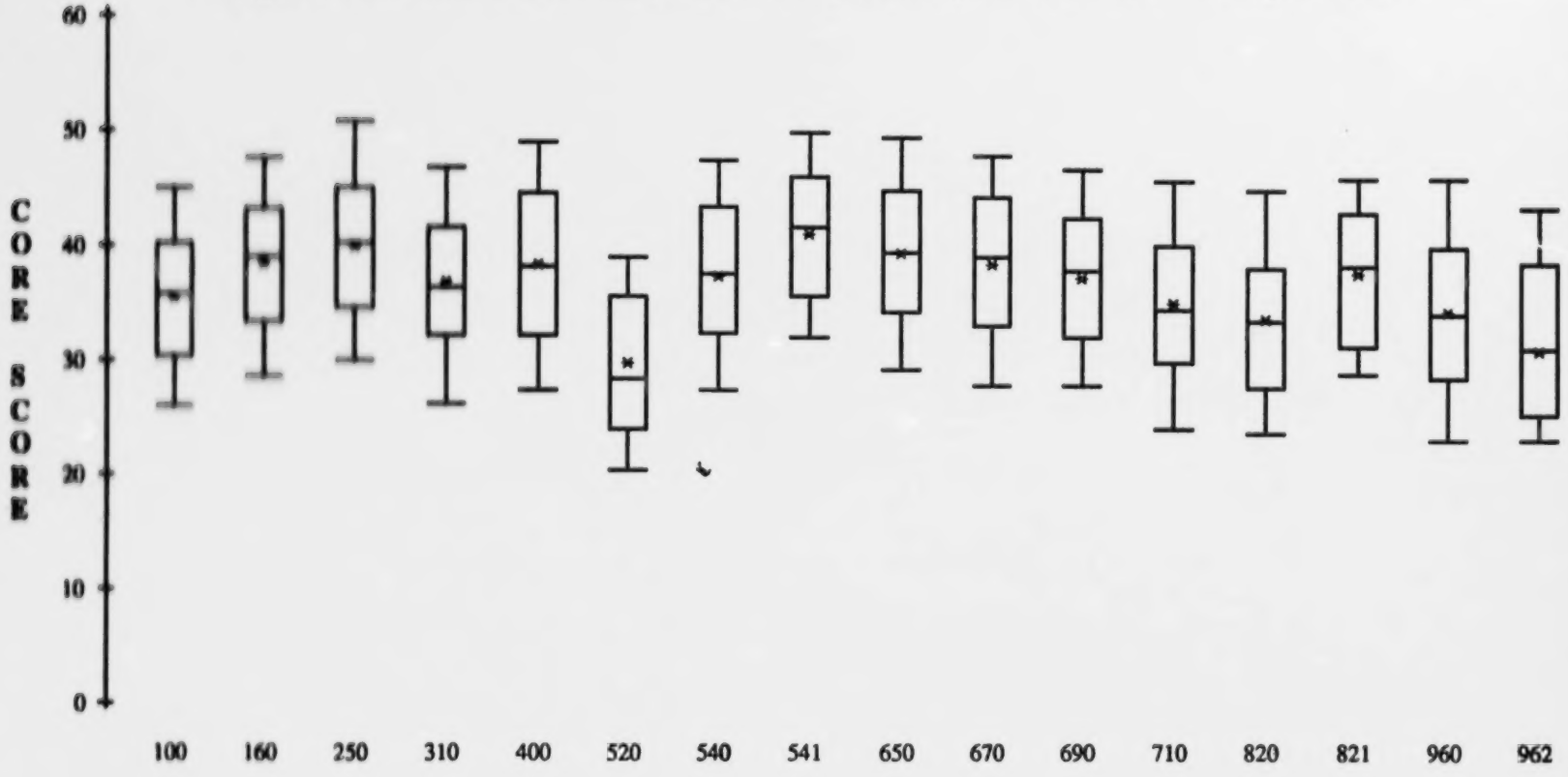
Figure 8. Distributions of Chemistry Core Scores by School Systems in the Northeast Region -- 1989



Northeast Region School Systems:

70 Beaufort Co.	210 Chowan Co.	460 Hertford Co.	720 Perquimans Co.
71 Washington City	270 Currituck Co.	480 Hyde Co.	740 Pitt Co.
80 Bertie Co.	280 Dare Co.	580 Martin Co.	890 Tyrrell Co.
150 Camden Co.	370 Gates Co.	700 Pasquotank Co.	940 Washington Co.

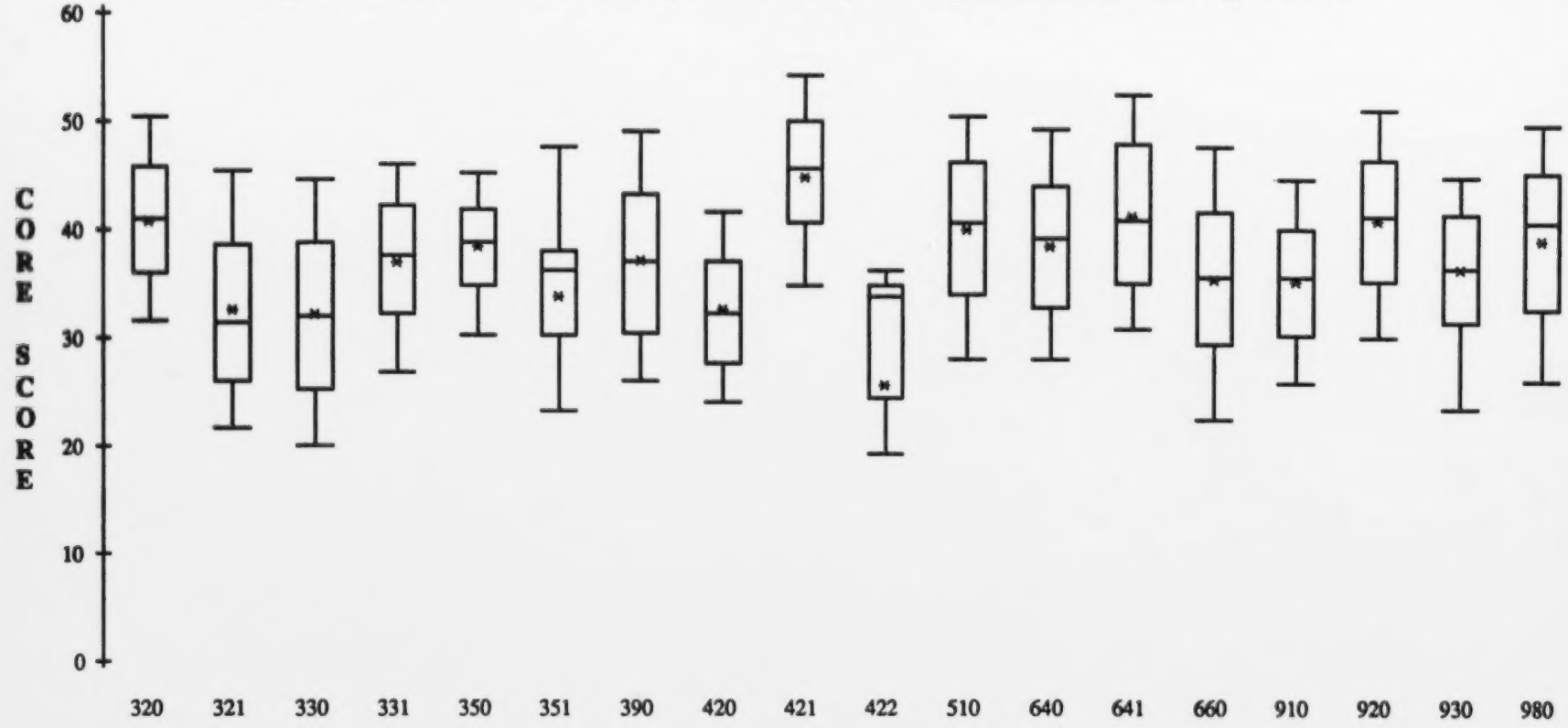
Figure 9. Distributions of Chemistry Core Scores by School System in the Southeast Region -- 1989



Southeast Region School Systems:

100 Brunswick Co.	400 Greene Co.	650 New Hanover Co.	820 Sampson Co.
160 Carteret Co.	520 Jones Co.	670 Onslow Co.	821 Clinton City
250 Craven Co.	540 Lenoir Co.	690 Pamlico Co.	960 Wayne Co.
310 Duplin Co.	541 Kinston City	710 Pender Co.	962 Goldsboro City

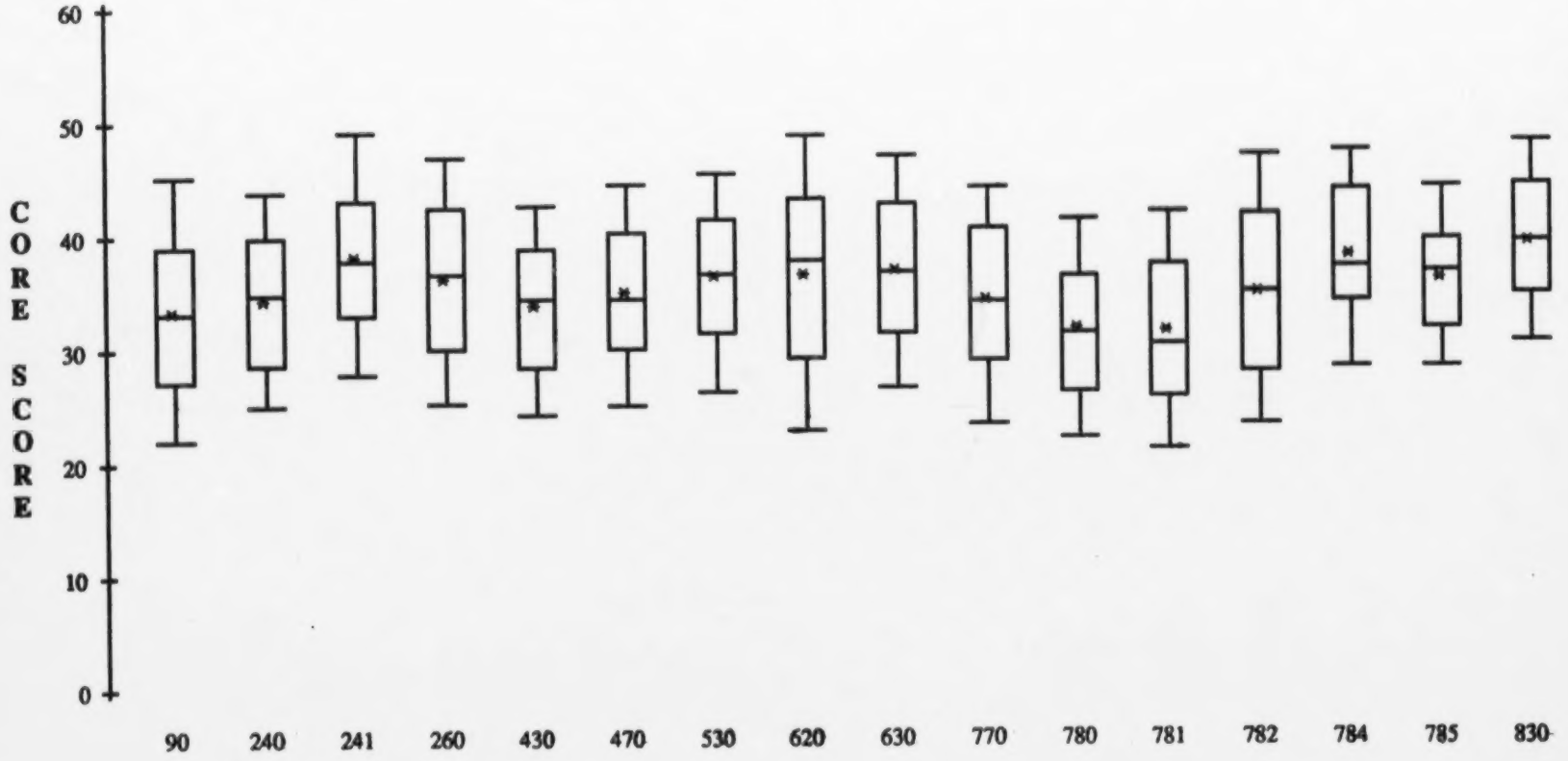
Figure 10. Distributions of Chemistry Core Scores by School Systems in the Central Region -- 1989



Central Region School Systems:

320 Durham Co.	350 Franklin Co.	421 Roanoke Rapids City	641 Rocky Mount City	930 Warren Co.
321 Durham City	351 Franklinton City	422 Weldon City	660 Northampton Co.	980 Wilson Co.
330 Edgecombe Co.	390 Granville Co.	510 Johnston Co.	910 Vance Co.	
331 Tarboro City	420 Halifax Co.	640 Nash Co.	920 Wake Co.	

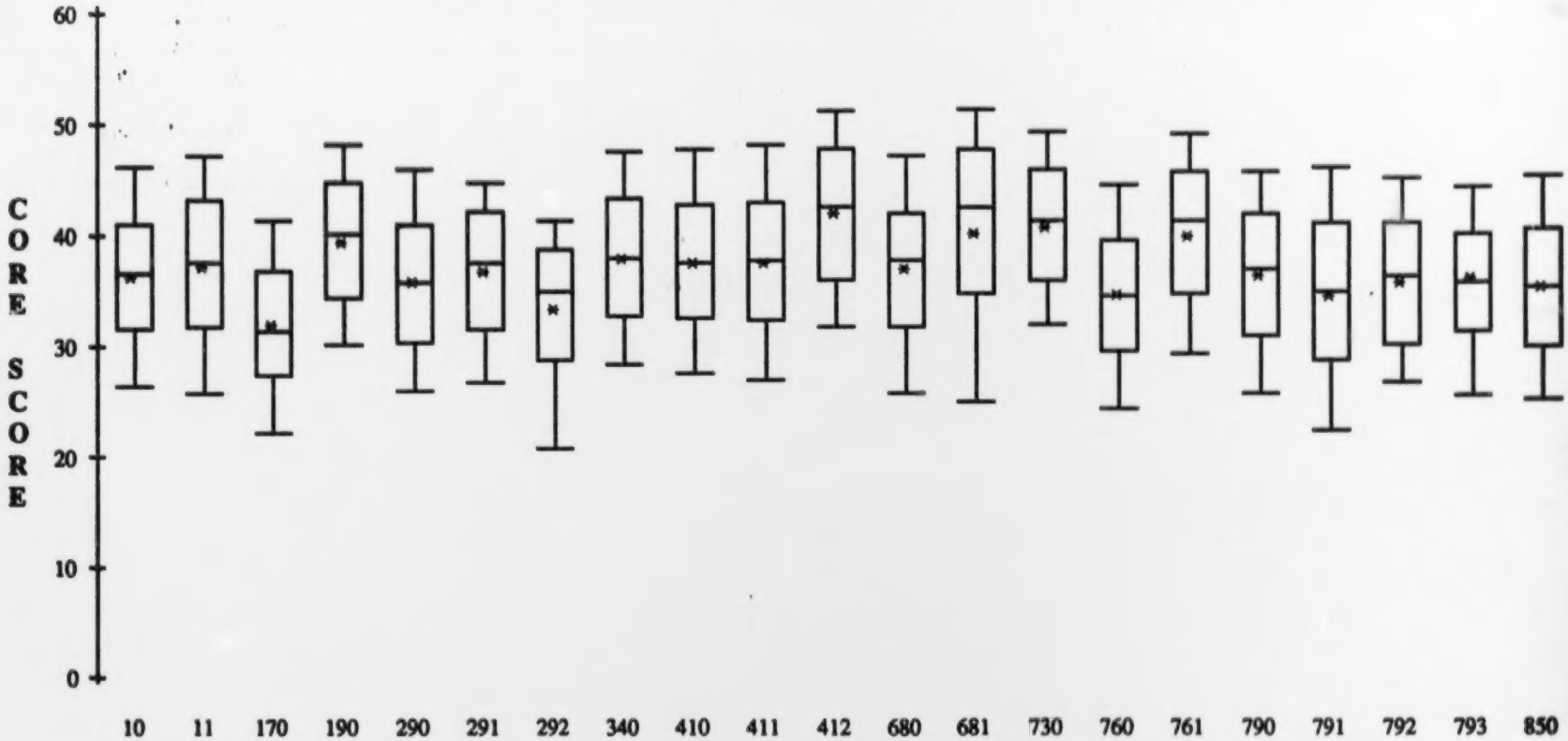
Figure 11. Distributions of Chemistry Core Scores by School Systems in the South Central Region -- 1989



South Central Region School Systems:

90 Bladen Co.	430 Harnett Co.	630 Moore Co.	782 Lumberton City
240 Columbus Co.	470 Hoke Co.	770 Richmond Co.	784 Red Springs City
241 Whiteville City	530 Lee Co.	780 Robeson Co.	785 St. Pauls City
260 Cumberland Co.	620 Montgomery Co.	781 Fairmont City	830 Scotland Co.

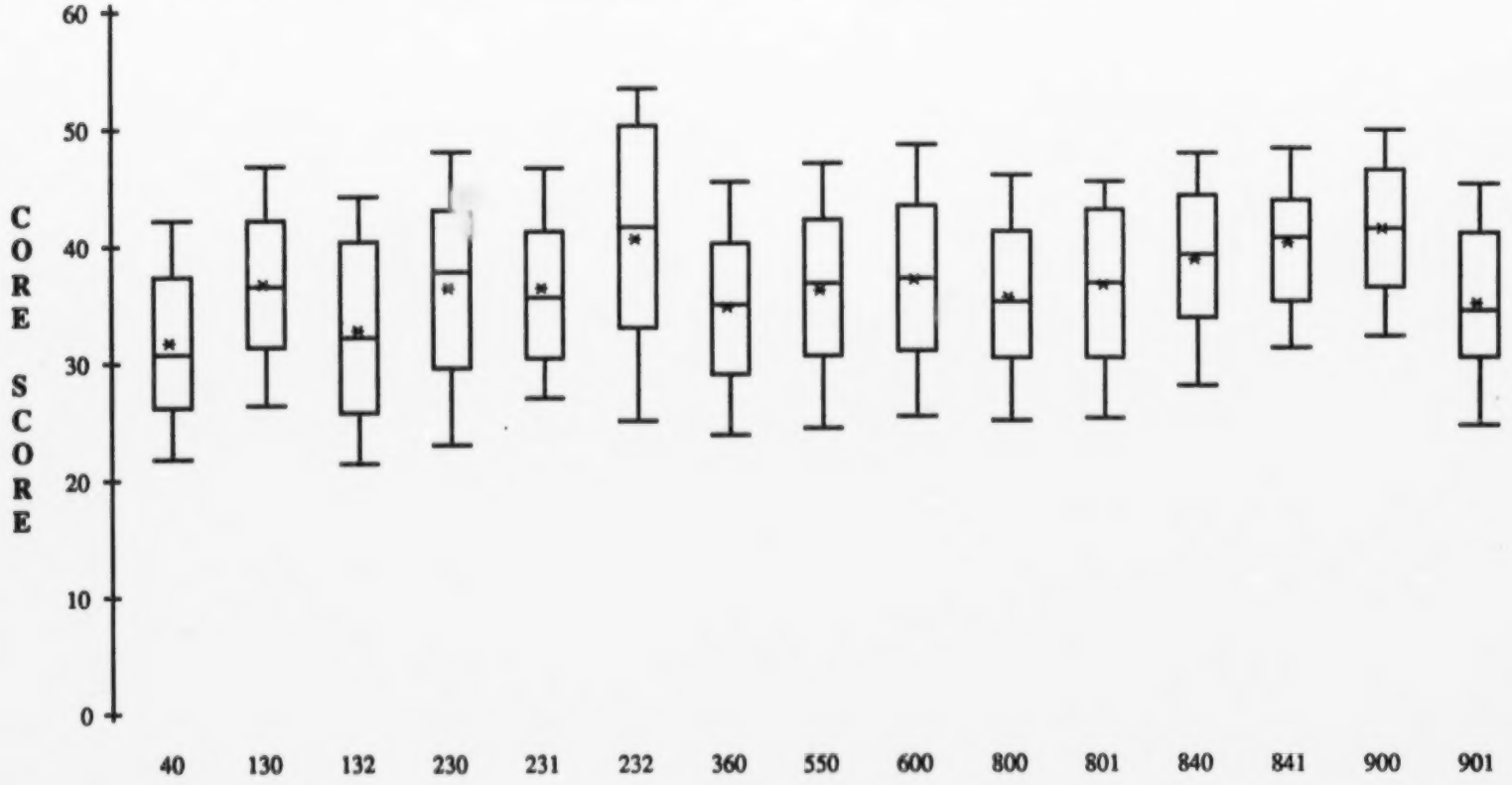
Figure 12. Distributions of Chemistry Core Scores by School Systems in the North Central Region -- 1989



North Central Region School Systems:

10 Alamance Co.	291 Lexington City	412 High Point City	761 Asheboro City	850 Stokes Co.
11 Burlington City	292 Thomasville City	680 Orange Co.	790 Rockingham Co.	
170 Caswell Co.	340 Forsyth Co.	681 Chapel Hill City	791 Eden City	
190 Chatham Co.	410 Guilford Co.	730 Person Co.	792 Western Rockingham City	
290 Davidson Co.	411 Greensboro City	760 Randolph Co.	793 Reidsville City	

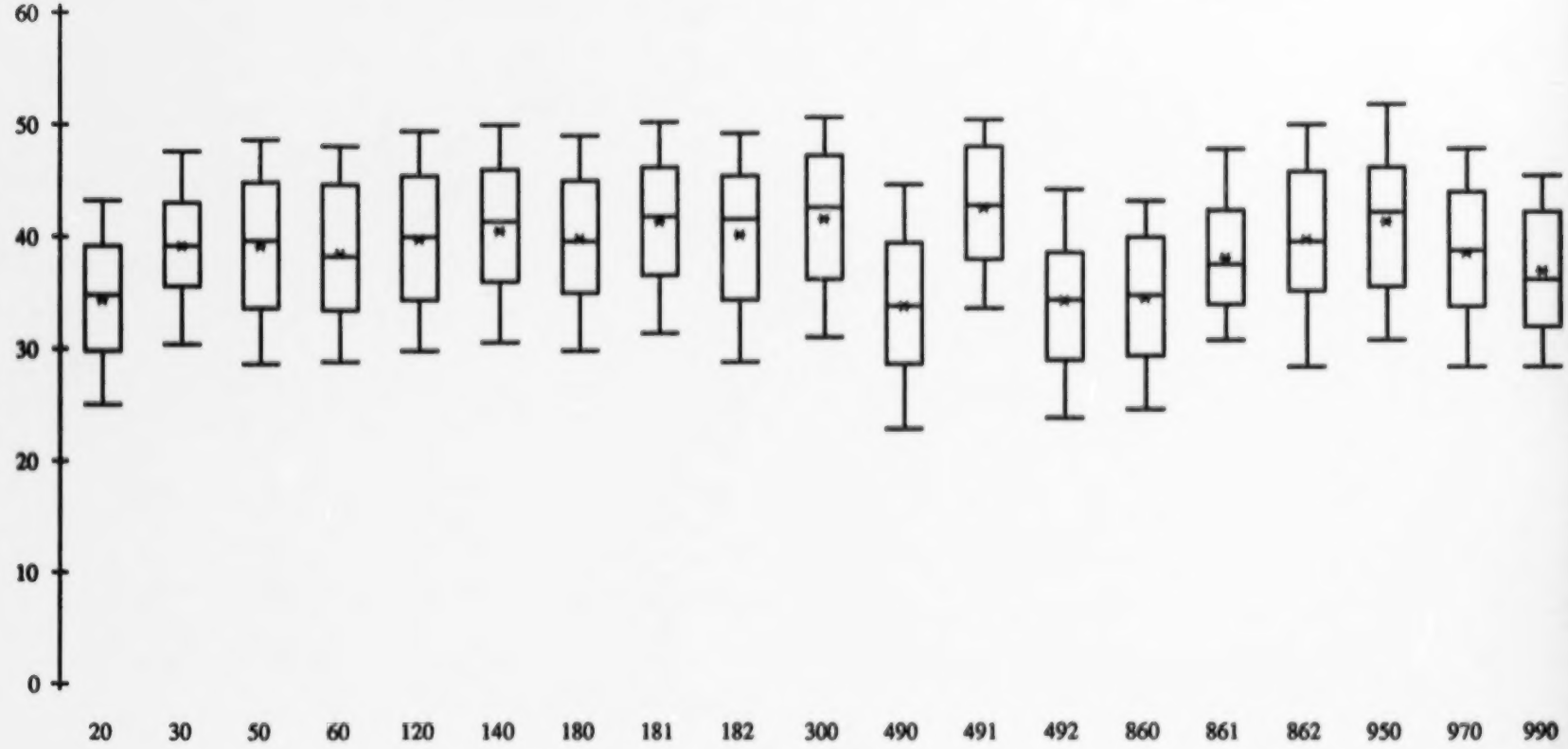
Figure 13. Distributions of Chemistry Core Scores by School Systems in the Southwest Region -- 1989



Southwest Region School Systems:

40 Anson Co.	231 Kings Mountain City	600 Mecklenburg Co.	841 Albemarle City
130 Cabarrus Co.	232 Shelby City	800 Rowan Co.	900 Union Co.
132 Kannapolis City	360 Gaston Co.	801 Salisbury City	901 Monroe City
230 Cleveland Co.	550 Lincoln Co.	840 Stanley Co.	

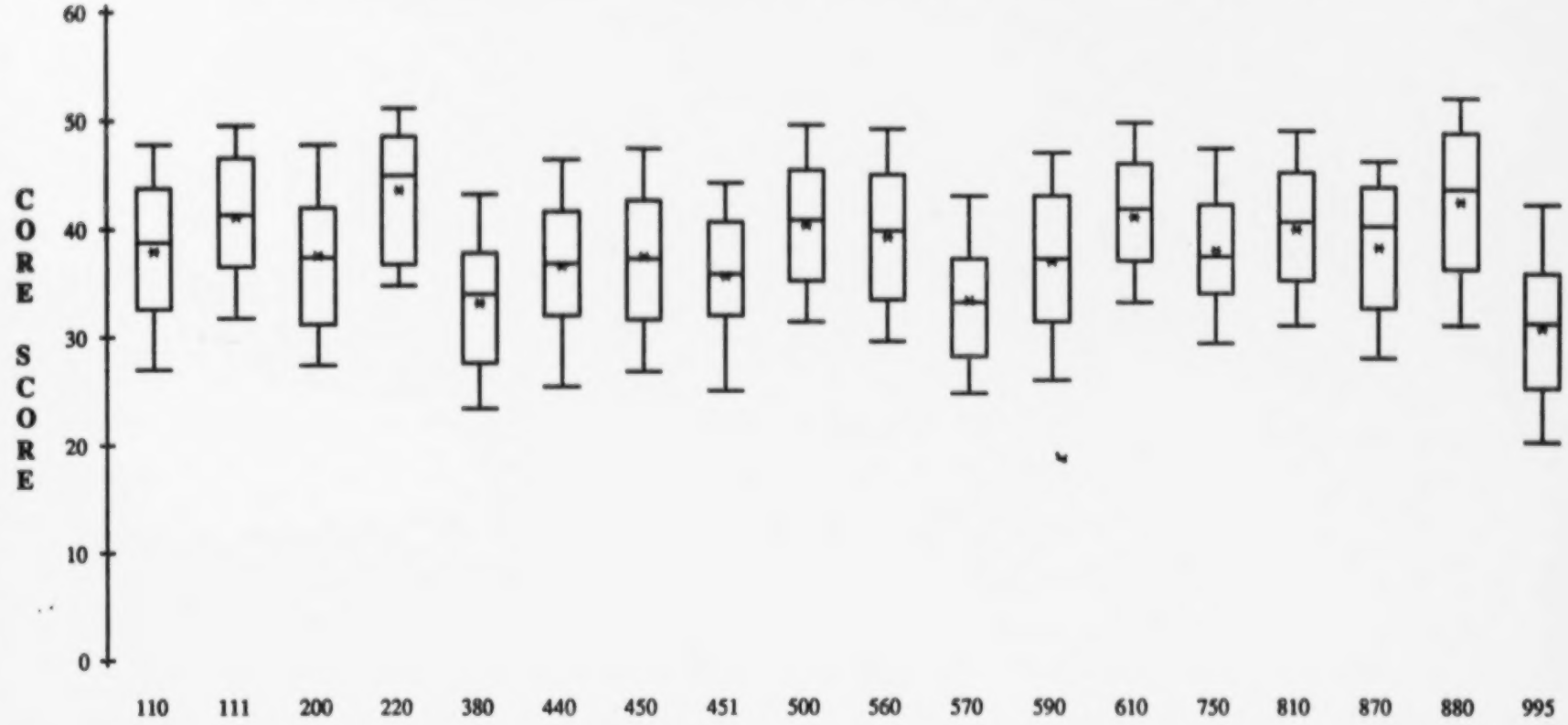
Figure 14. Distributions of Chemistry Core Scores by School Systems in the Northwest Region -- 1989



Northwest Region School Systems:

20 Alexander Co.
30 Alleghany Co.
50 Ashe Co.
60 Avery Co.
120 Burke Co.
140 Caldwell Co.
180 Catawba Co.
181 Hickory City
182 Newton-Conover City
300 Davie Co.
490 Iredell Co.
491 Mooresville City
492 Statesville City
860 Surry Co.
861 Elkin City
862 Mount Airy City
950 Watauga Co.
970 Wilkes Co.
990 Yadkin Co.

Figure 15. Distributions of Chemistry Core Scores by School Systems in the Western Region -- 1989



Western Region School Systems:

110 Buncombe Co.
111 Asheville City
200 Cherokee Co.
220 Clay Co.
380 Graham Co.
440 Haywood Co.
450 Henderson Co.
451 Hendersonville City
500 Jackson Co.
560 Macon Co.
570 Madison Co.
590 McDowell Co.
610 Mitchell Co.
750 Polk Co.
810 Rutherford Co.
870 Swain Co.
880 Transylvania Co.
995 Yancey Co.

TABLE 10
North Carolina End-of-Course Testing Program
Core Performance, Participation Rate, Yield, and Effective Yield
Chemistry: 1989

Region Northeast

School System	Average Core	Percent of Class	Yield	Effective Yield
Beaufort County	37.4	23.2	14.5	13.2
Washington City	37.1	48.7	30.1	28.6
Bertie County	35.2	14.4	8.5	8.2
Camden County	39.2	41.7	27.2	27.2
Chowan County	38.3	39.0	24.9	23.4
Currituck County	41.2	25.9	17.8	17.8
Dare County	38.9	37.4	24.3	23.7
Gates County	36.2	56.6	34.1	30.7
Hertford County	32.7	39.3	21.4	18.1
Hyde County	37.7	22.9	14.4	13.5
Martin County	38.7	29.4	18.9	18.2
Pasquotank County	37.3	35.4	22.0	21.4
Perquimans County	33.5	44.6	24.9	21.0
Pitt County	38.1	43.0	27.3	26.0
Tyrrell County	35.2	28.8	16.9	15.9
Washington County	37.2	34.7	21.5	19.8

Note: *Percent of class* is an estimate of Chemistry participation calculated by dividing the total number of Chemistry students by the number of students in the ninth grade class. *Yield* is an index of the effectiveness of an Chemistry program which combines participation and performance. It is calculated by multiplying the percent of a class taking Chemistry by the percent of core items answered correctly and then multiplying by 100. *Effective yield* is a similar index which counts as 'participating' in Chemistry only those students whose achievement is estimated to be passing.

TABLE 10, cont'd.
North Carolina End-of-Course Testing Program
Core Performance, Participation Rate, Yield, and Effective Yield
Chemistry: 1989

Region Southeast

School System	Average Core	Percent of Class	Yield	Effective Yield
Brunswick County	35.5	29.2	17.3	15.8
Carteret County	38.5	37.9	24.3	23.2
Craven County	40.1	32.2	21.5	20.9
Duplin County	36.8	31.4	19.3	17.7
Greene County	38.5	36.4	23.3	22.3
Jones County	29.8	41.4	20.6	14.1
Lenoir County	37.5	31.1	19.4	18.3
Kinston City	40.9	25.1	17.1	16.8
New Hanover County	39.3	48.9	32.0	30.8
Onslow County	38.4	29.6	18.9	18.1
Pamlico County	37.2	27.8	17.3	15.9
Pender County	34.9	23.7	13.8	11.8
Sampson County	33.6	20.9	11.7	10.0
Clinton City	37.5	16.3	10.2	9.9
Wayne County	34.3	41.9	24.0	20.1
Goldsboro City	30.9	40.2	20.7	15.4

Note: *Percent of class* is an estimate of Chemistry participation calculated by dividing the total number of Chemistry students by the number of students in the ninth grade class. *Yield* is an index of the effectiveness of an Chemistry program which combines participation and performance. It is calculated by multiplying the percent of a class taking Chemistry by the percent of core items answered correctly and then multiplying by 100. *Effective yield* is a similar index which counts as 'participating' in Chemistry only those students whose achievement is estimated to be passing.

TABLE 10, cont'd.
North Carolina End-of-Course Testing Program
Core Performance, Participation Rate, Yield, and Effective Yield
Chemistry: 1989

Region Central

School System	Average Core	Percent of Class	Yield	Effective Yield
Durham County	40.8	44.3	30.2	29.4
Durham City	32.6	36.2	19.7	15.2
Edgecombe County	32.2	34.5	18.5	13.8
Tarboro City	36.9	41.6	25.6	23.6
Franklin County	38.3	22.3	14.3	14.0
Franklinton City	33.9	15.0	8.5	6.2
Granville County	37.1	38.0	23.5	21.5
Halifax County	32.6	22.3	12.1	10.4
Roanoke Rapids City	44.7	26.1	19.5	19.1
Weldon City	25.7	44.2	18.9	9.0
Johnston County	40.0	38.3	25.5	24.3
Nash County	38.4	36.3	23.2	22.0
Rocky Mount City	41.1	35.7	24.5	23.4
Northampton County	35.5	40.0	23.7	20.4
Vance County	35.2	33.0	19.4	17.6
Wake County	40.8	53.7	36.5	35.1
Warren County	36.3	13.2	8.0	7.2
Wilson County	38.9	35.3	22.9	20.8

Note: *Percent of class* is an estimate of Chemistry participation calculated by dividing the total number of Chemistry students by the number of students in the ninth grade class. *Yield* is an index of the effectiveness of an Chemistry program which combines participation and performance. It is calculated by multiplying the percent of a class taking Chemistry by the percent of core items answered correctly and then multiplying by 100. *Effective yield* is a similar index which counts as 'participating' in Chemistry only those students whose achievement is estimated to be passing.

TABLE 10, cont'd.
North Carolina End-of-Course Testing Program
Core Performance, Participation Rate, Yield, and Effective Yield
Chemistry: 1989

Region South Central

School System	Average Core	Percent of Class	Yield	Effective Yield
Bladen County	33.3	34.4	19.1	15.1
Columbus County	34.4	16.0	9.2	8.1
Whiteville City	38.2	39.0	24.8	23.2
Cumberland County	36.3	43.7	26.4	23.6
Harnett County	33.9	27.9	15.8	13.4
Hoke County	35.1	23.3	13.6	12.1
Lee County	36.3	36.0	21.8	19.9
Montgomery County	36.6	44.1	26.9	23.4
Moore County	37.0	34.8	21.5	20.0
Richmond County	34.3	30.5	17.5	14.9
Robeson County	31.8	28.3	15.0	11.7
Fairmont City	31.6	43.8	23.1	17.9
Lumberton City	35.0	54.5	31.8	27.2
Red Springs	38.2	19.9	12.7	12.7
Saint Pauls City	36.2	26.7	16.1	15.6
Scotland County	39.4	17.2	11.3	11.1

Note: *Percent of class* is an estimate of Chemistry participation calculated by dividing the total number of Chemistry students by the number of students in the ninth grade class. *Yield* is an index of the effectiveness of an Chemistry program which combines participation and performance. It is calculated by multiplying the percent of a class taking Chemistry by the percent of core items answered correctly and then multiplying by 100. *Effective yield* is a similar index which counts as 'participating' in Chemistry only those students whose achievement is estimated to be passing.

TABLE 10, cont'd.
North Carolina End-of-Course Testing Program
Core Performance, Participation Rate, Yield, and Effective Yield
Chemistry: 1989

Region North Central

School System	Average Core	Percent of Class	Yield	Effective Yield
Alamance County	36.6	39.5	24.1	22.2
Burlington City	37.5	53.8	33.6	30.7
Caswell County	32.2	40.8	21.9	18.1
Chatham County	39.7	32.4	21.4	20.9
Davidson County	36.1	43.8	26.3	24.1
Lexington City	37.1	28.2	17.4	16.2
Thomasville City	33.6	32.2	18.0	14.5
Forsyth County	38.2	38.1	24.3	23.1
Guilford County	37.9	48.4	30.5	28.8
Greensboro City	37.7	49.6	31.2	29.1
High Point City	42.2	28.2	19.8	19.6
Orange County	37.2	30.8	19.1	17.3
Chapel Hill City	40.5	83.1	56.1	50.1
Person County	40.9	30.0	20.5	20.0
Randolph County	34.9	25.8	15.0	13.3
Asheboro City	40.3	43.4	29.1	27.8
Rockingham County	36.7	31.9	19.5	17.7
Eden City	34.9	46.2	26.8	22.4
West. Rockingham	36.1	42.6	25.6	23.8
Reidsville City	35.9	30.4	18.2	16.5
Stokes County	35.6	37.3	22.2	19.9

Note: *Percent of class* is an estimate of Chemistry participation calculated by dividing the total number of Chemistry students by the number of students in the ninth grade class. *Yield* is an index of the effectiveness of an Chemistry program which combines participation and performance. It is calculated by multiplying the percent of a class taking Chemistry by the percent of core items answered correctly and then multiplying by 100. *Effective yield* is a similar index which counts as 'participating' in Chemistry only those students whose achievement is estimated to be passing.

TABLE 10, cont'd.
North Carolina End-of-Course Testing Program
Core Performance, Participation Rate, Yield, and Effective Yield
Chemistry: 1989

Region Southwest

School System	Average Core	Percent of Class	Yield	Effective Yield
Anson County	31.8	35.7	18.9	15.0
Cabarrus County	36.7	41.4	25.3	23.2
Kannapolis City	32.7	40.3	22.0	16.9
Cleveland County	36.4	36.9	22.4	19.4
Kings Mountain City	36.3	34.5	20.9	18.9
Shelby City	40.6	73.3	49.7	44.4
Gaston County	34.8	40.7	23.6	20.2
Lincoln County	36.3	34.0	20.5	18.1
Mecklenburg County	37.1	49.4	30.6	27.5
Rowan County	35.7	38.3	22.8	20.3
Salisbury City	36.5	57.4	35.0	31.2
Stanly County	38.7	28.5	18.4	17.3
Albemarle City	40.1	45.2	30.2	29.8
Union County	41.4	32.7	22.6	22.2
Monroe City	35.1	39.8	23.3	20.5

Note: *Percent of class* is an estimate of Chemistry participation calculated by dividing the total number of Chemistry students by the number of students in the ninth grade class. *Yield* is an index of the effectiveness of an Chemistry program which combines participation and performance. It is calculated by multiplying the percent of a class taking Chemistry by the percent of core items answered correctly and then multiplying by 100. *Effective yield* is a similar index which counts as 'participating' in Chemistry only those students whose achievement is estimated to be passing.

TABLE 10, cont'd.
North Carolina End-of-Course Testing Program
Core Performance, Participation Rate, Yield, and Effective Yield
Chemistry: 1989

Region Northwest

School System	Average Core	Percent of Class	Yield	Effective Yield
Alexander County	34.4	46.0	26.4	23.6
Alleghany County	39.1	45.0	29.3	28.8
Ashe County	39.1	22.4	14.6	14.2
Avery County	38.4	24.5	15.7	14.5
Burke County	39.8	28.7	19.0	18.4
Caldwell County	40.6	19.2	13.0	12.5
Catawba County	39.8	32.0	21.2	20.5
Hickory City	41.3	38.8	26.7	26.3
Newton City	40.2	34.4	23.0	21.6
Davie County	41.5	37.2	25.8	25.2
Iredell County	33.9	35.9	20.3	16.9
Mooresville City	42.7	33.5	23.8	23.8
Statesville City	34.3	43.1	24.6	21.3
Surry County	34.7	42.0	24.3	21.5
Elkin City	38.2	42.9	27.3	26.5
Mount Airy City	39.9	58.8	39.1	37.1
Watauga County	41.3	32.6	22.5	21.9
Wilkes County	38.5	33.2	21.3	20.1
Yadkin County	37.0	29.4	18.1	17.2

Note: *Percent of class* is an estimate of Chemistry participation calculated by dividing the total number of Chemistry students by the number of students in the ninth grade class. *Yield* is an index of the effectiveness of an Chemistry program which combines participation and performance. It is calculated by multiplying the percent of a class taking Chemistry by the percent of core items answered correctly and then multiplying by 100. *Effective yield* is a similar index which counts as 'participating' in Chemistry only those students whose achievement is estimated to be passing.

TABLE 10, cont'd.
North Carolina End-of-Course Testing Program
Core Performance, Participation Rate, Yield, and Effective Yield
Chemistry: 1989

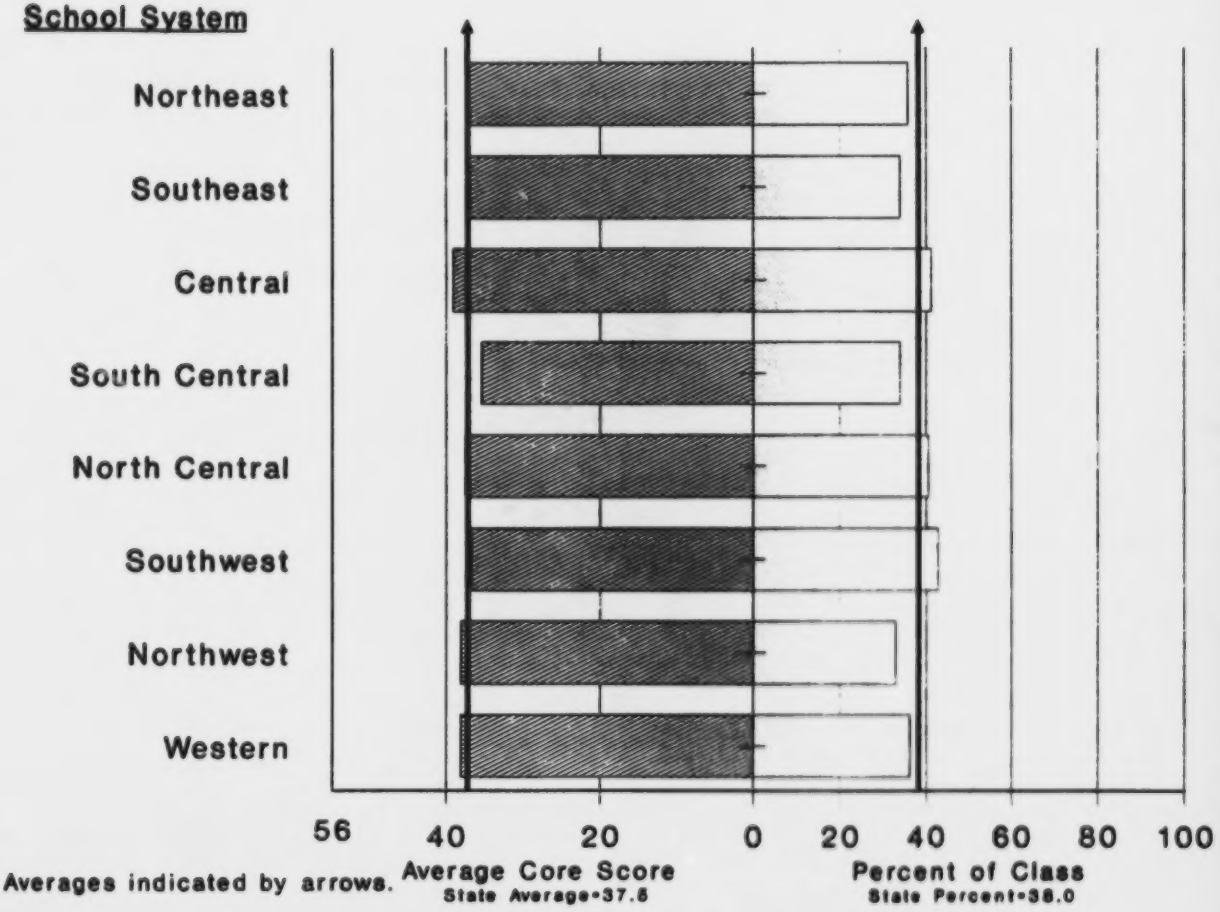
Region Western

School System	Average Core	Percent of Class	Yield	Effective Yield
Buncombe County	37.9	37.6	23.8	21.9
Asheville City	41.1	39.8	27.3	26.9
Cherokee County	37.5	40.8	25.5	24.4
Clay County	43.5	21.7	15.7	15.7
Graham County	33.2	38.3	21.2	18.1
Haywood County	36.6	37.3	22.7	20.5
Henderson County	37.3	36.5	22.7	21.5
Hendersonville City	35.6	49.0	29.1	26.0
Jackson County	40.4	47.9	32.3	31.6
Macon County	39.2	47.9	31.3	29.9
Madison County	33.4	34.6	19.3	16.8
McDowell County	37.1	33.3	20.6	18.7
Mitchell County	41.3	27.1	18.6	18.6
Polk County	38.1	31.1	19.7	19.3
Rutherford County	40.0	21.7	14.5	13.9
Swain County	38.3	55.7	35.5	33.6
Transylvania County	42.4	46.2	32.6	31.7
Yancey County	31.2	31.9	16.6	12.4

Note: *Percent of class* is an estimate of Chemistry participation calculated by dividing the total number of Chemistry students by the number of students in the ninth grade class. *Yield* is an index of the effectiveness of an Chemistry program which combines participation and performance. It is calculated by multiplying the percent of a class taking Chemistry by the percent of core items answered correctly and then multiplying by 100. *Effective yield* is a similar index which counts as 'participating' in Chemistry only those students whose achievement is estimated to be passing.

Figure 16

Chemistry Core Scores and Participation Rates by Region--1989



State Averages indicated by arrows.

Figure 17

Chemistry Core Scores and Participation Rates in the Northeast Region--1989

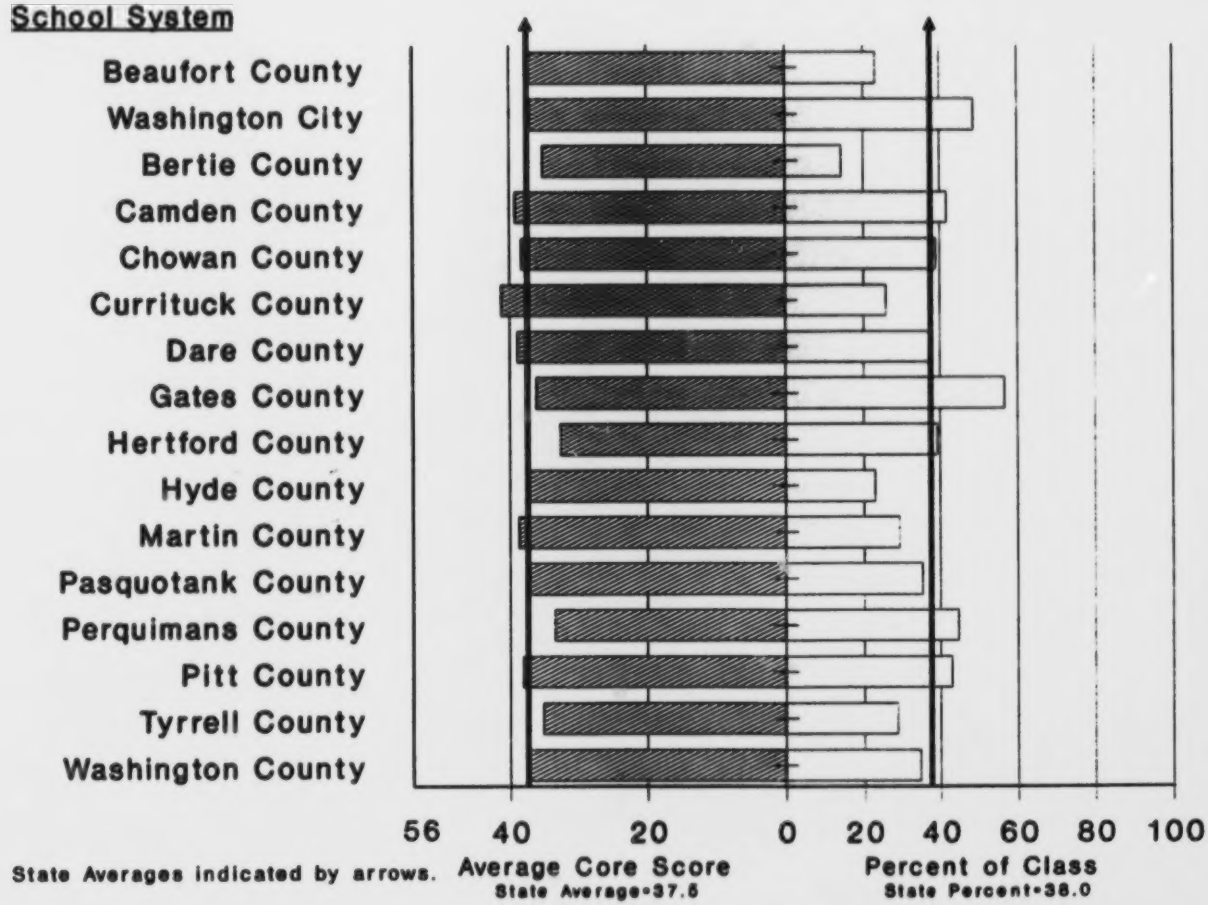


Figure 18

Chemistry Core Scores and Participation Rates in the Southeast Region--1989

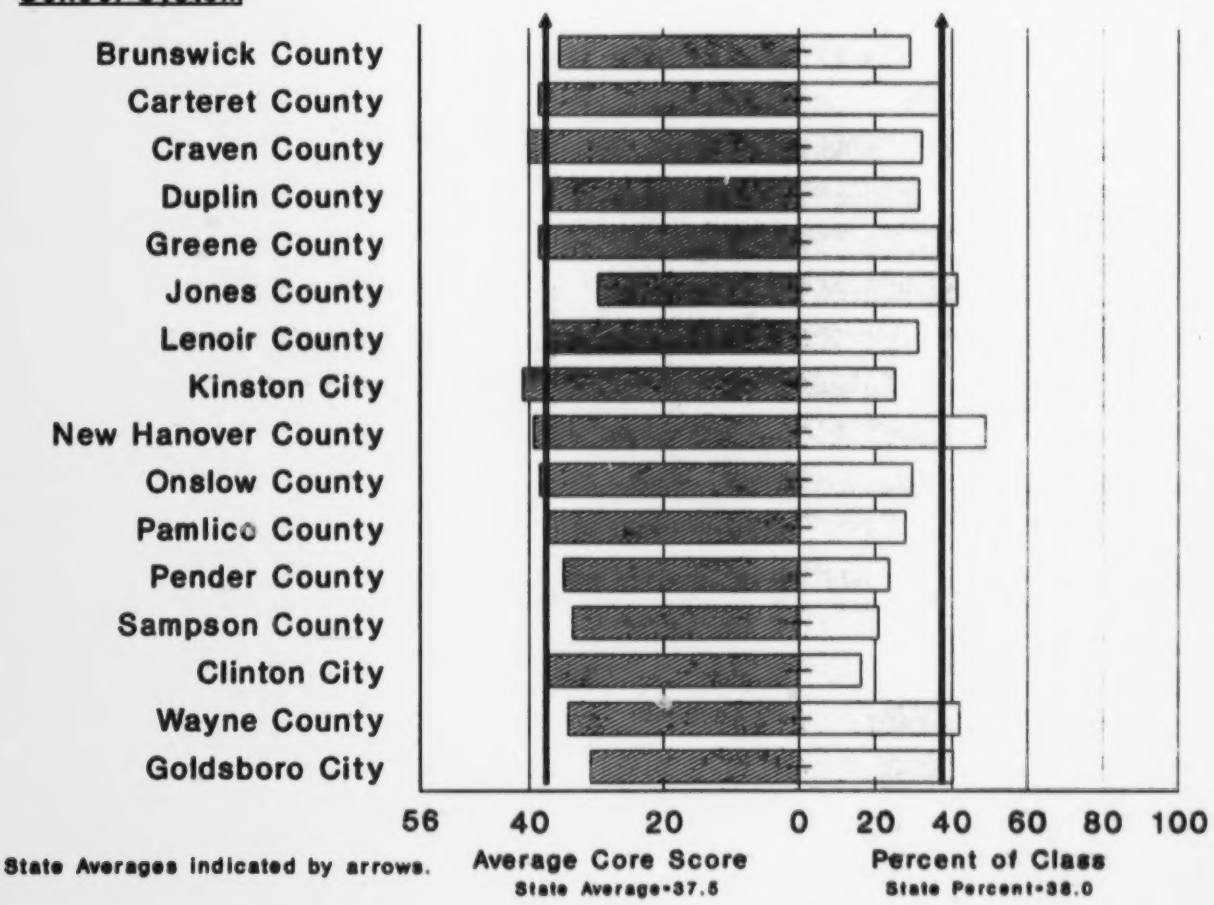


Figure 19

Chemistry Core Scores and Participation Rates in the Central Region--1989

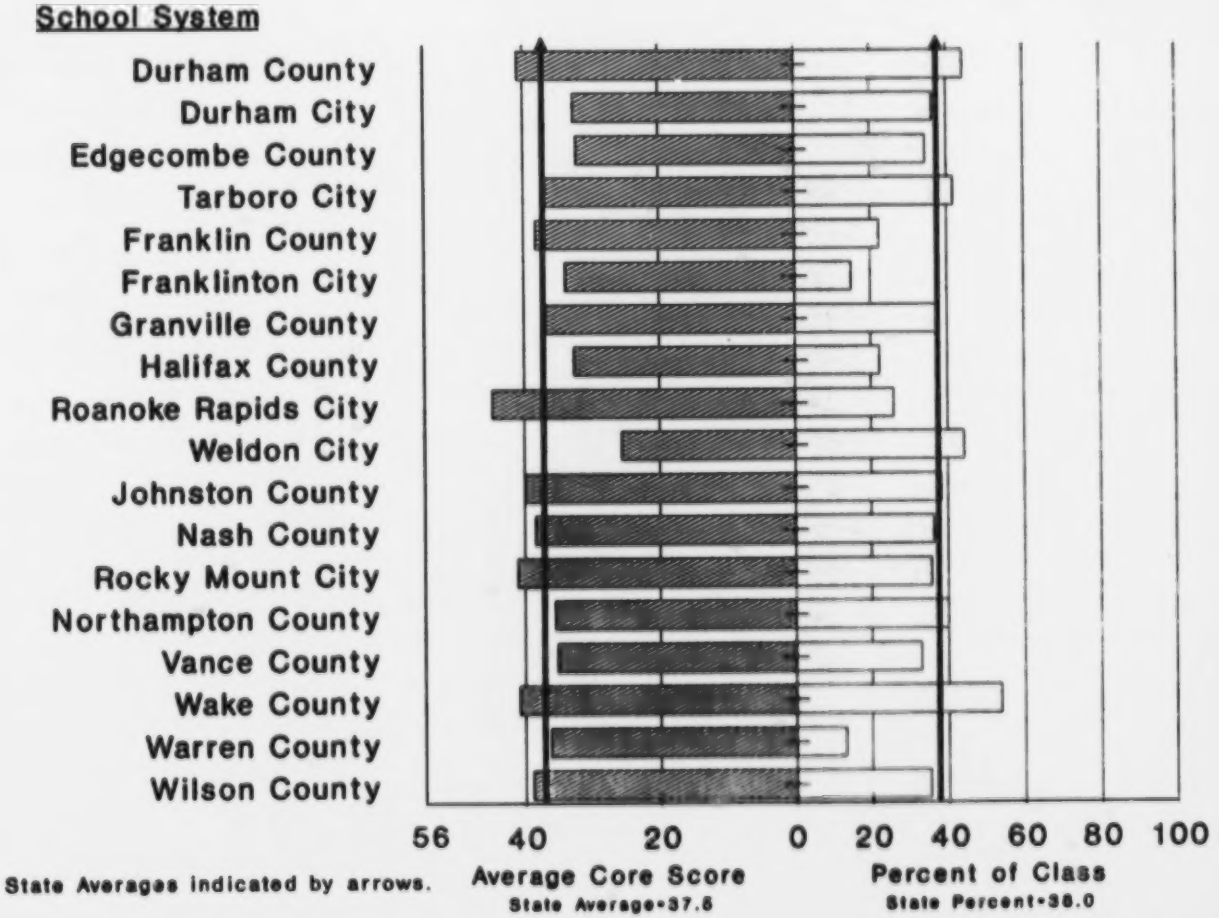


Figure 20

Chemistry Core Scores and Participation Rates in the South Central Region--1989

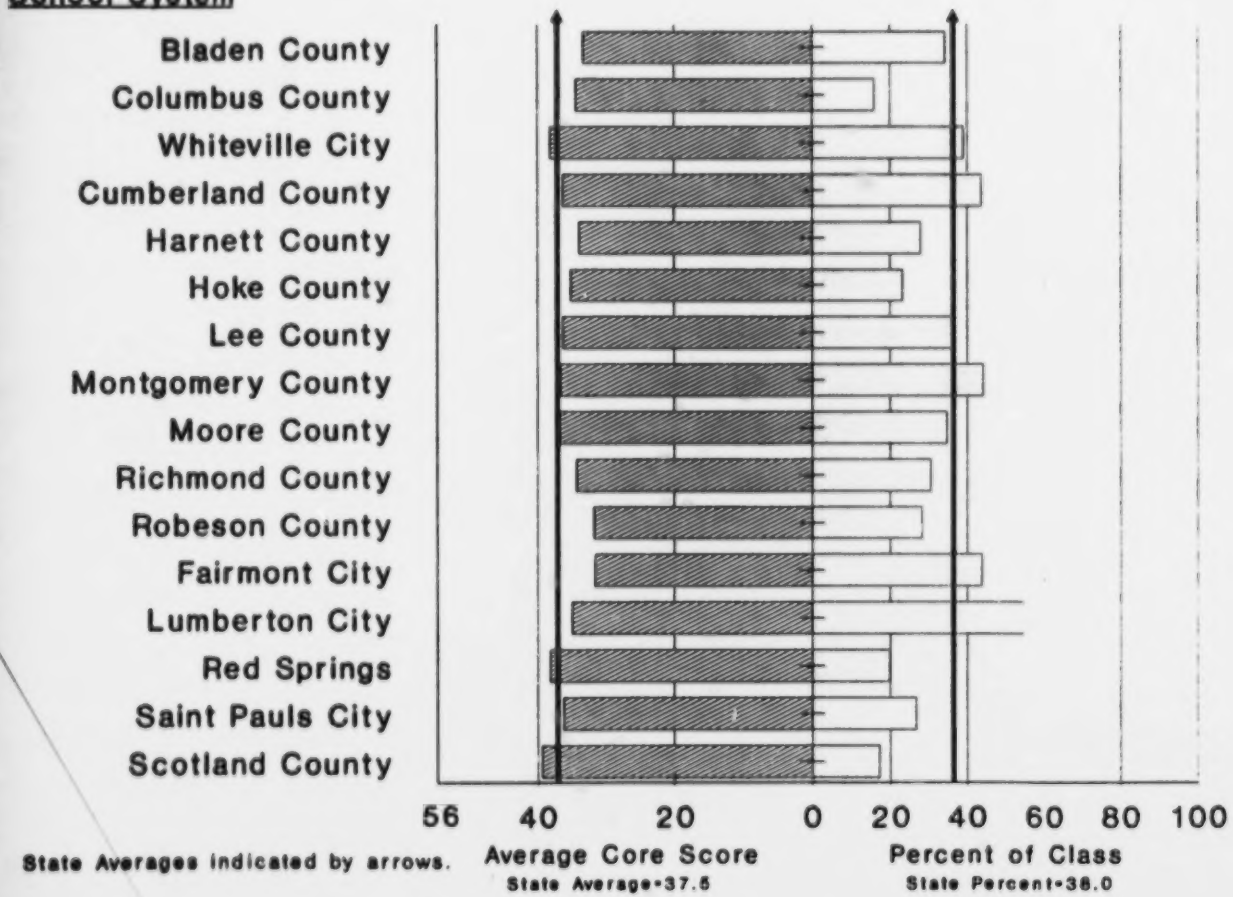


Figure 21

Chemistry Core Scores and Participation Rates in the North Central Region--1989

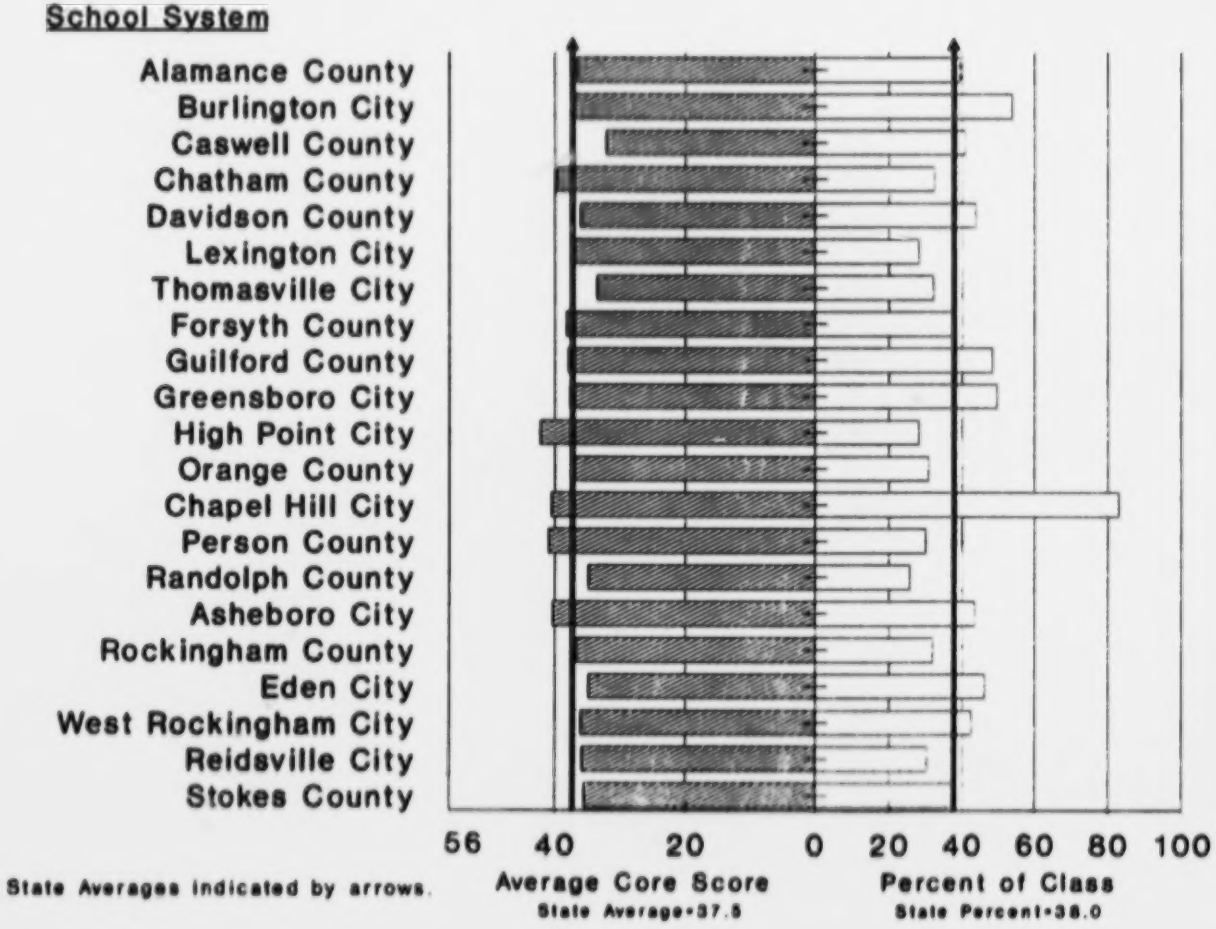


Figure 22
Chemistry Core Scores and Participation Rates in the Southwest Region--1989

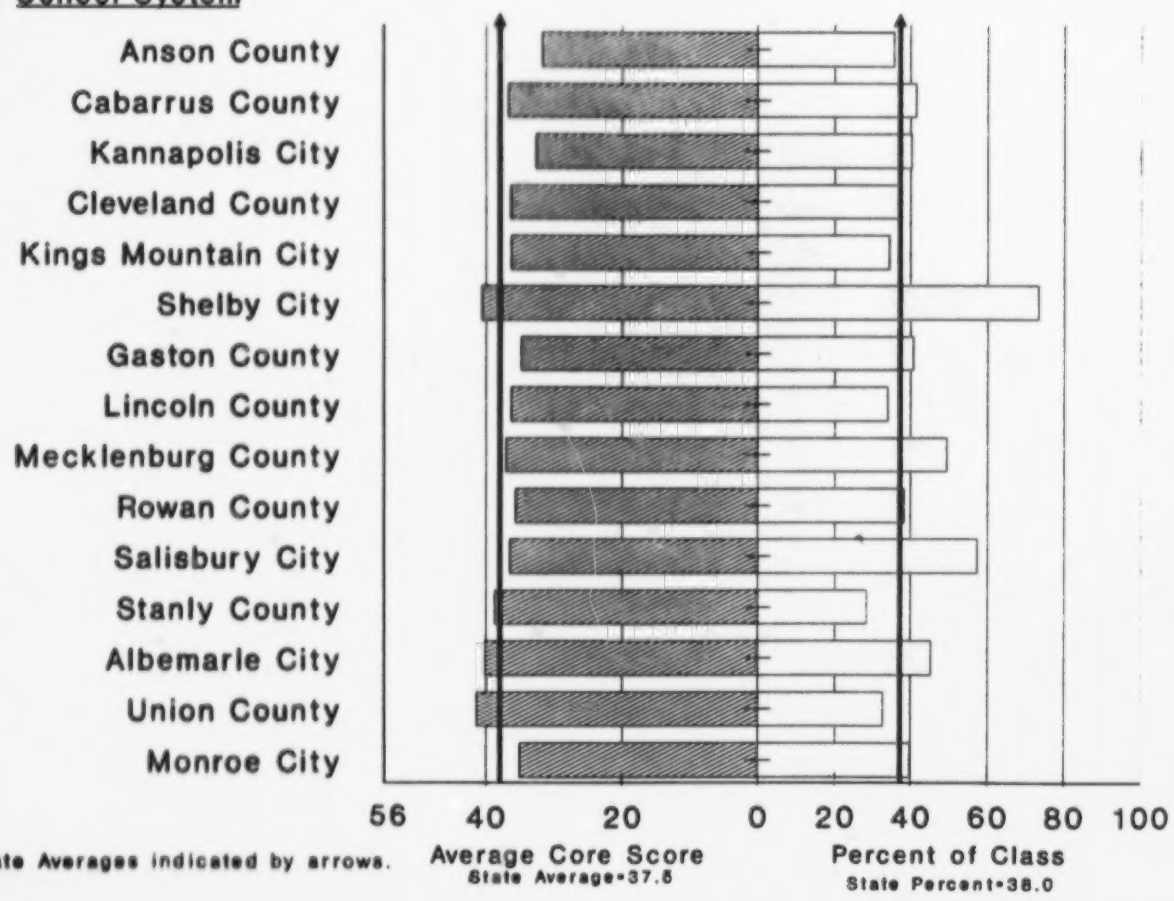


Figure 23

Chemistry Core Scores and Participation Rates in the Northwest Region--1989

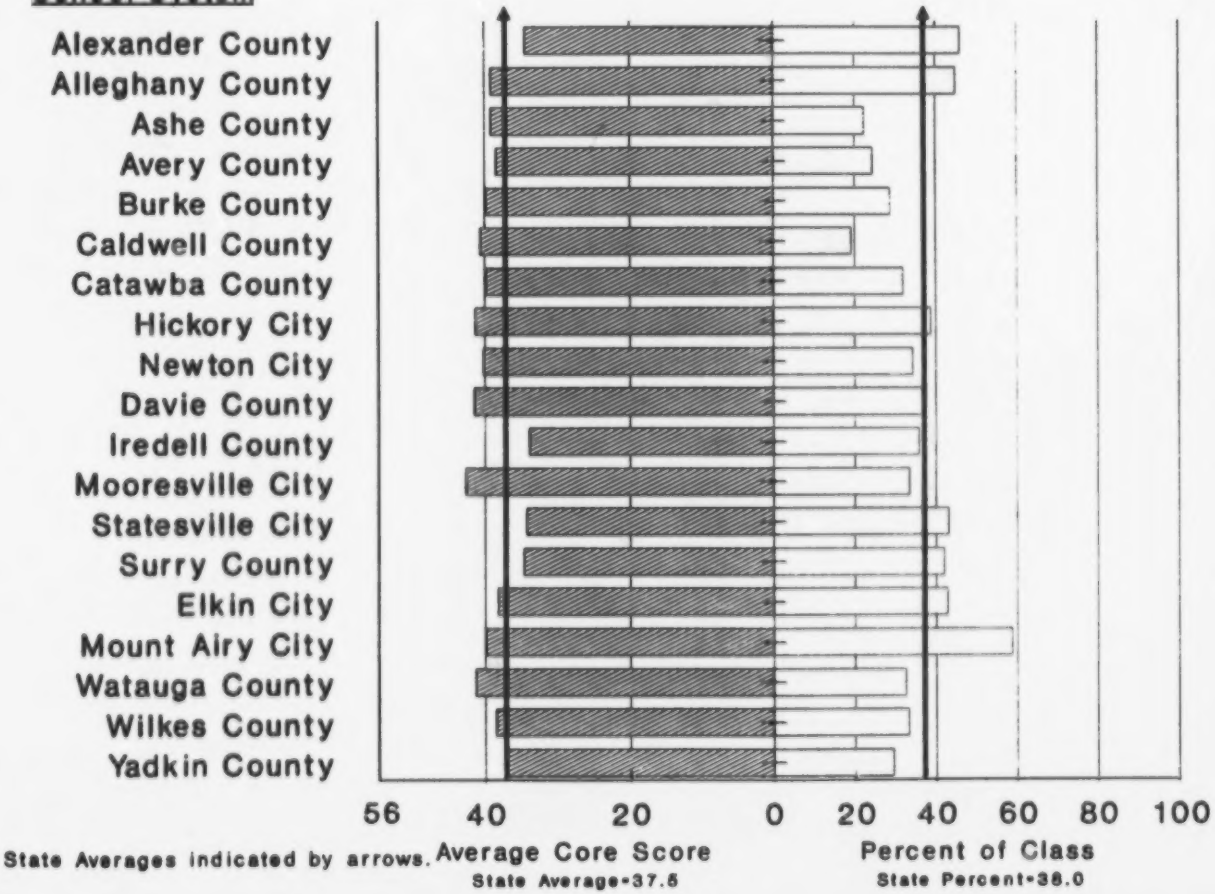
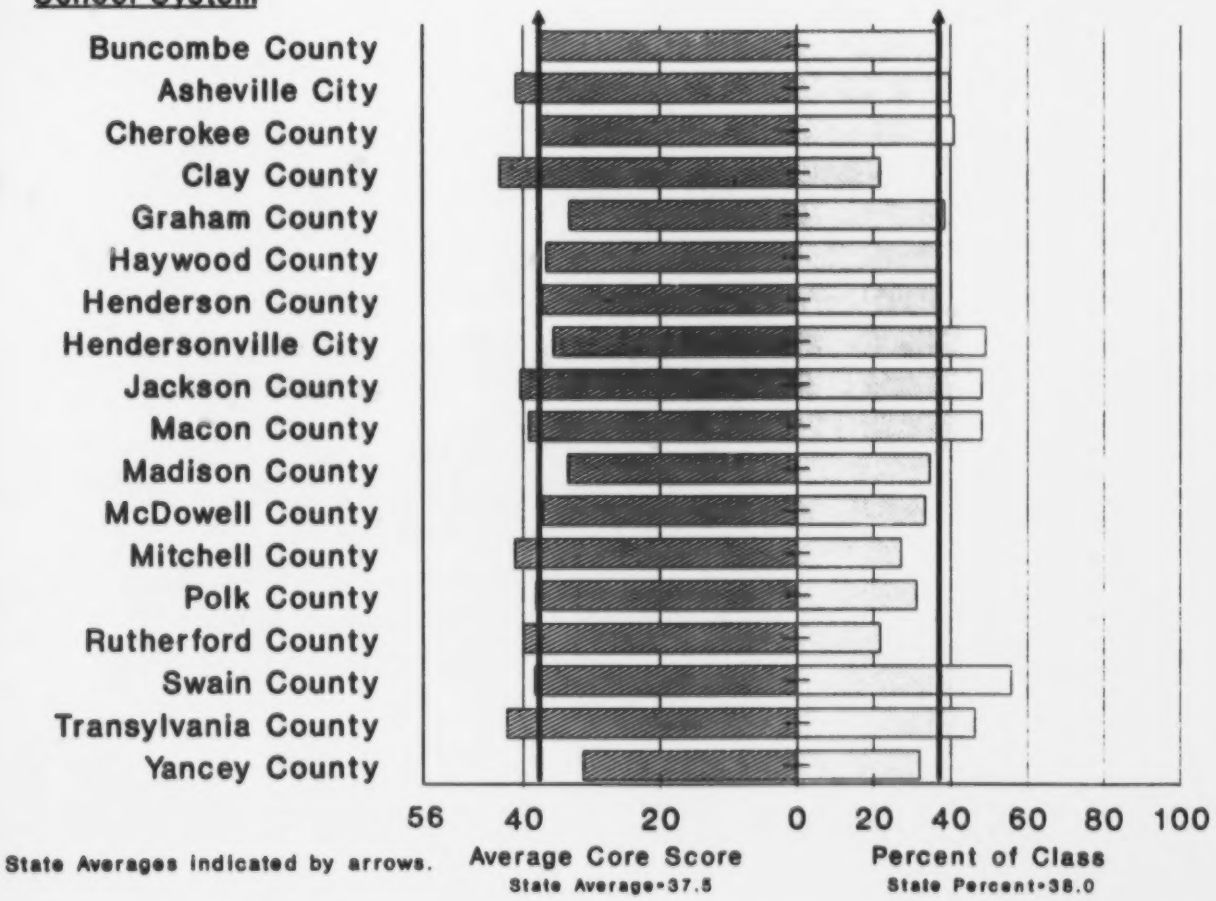


Figure 24

Chemistry Core Scores and Participation Rates in the Western Region--1989



State Averages indicated by arrows.

Table 11

Select Characteristics of Chemistry Students in Public School Systems: 1989

REGION NORTHEAST

REGION REPORT

	NUMBER TESTED	PERCENT OF CLASS	PERCENT OF TENTH GRADE	PERCENT OF ELEVENTH GRADE	PERCENT BLACK	PERCENT CHEMISTRY BLACK	PERCENT LESS THAN HS EDUC	PERCENT CHEMISTRY LESS THAN HS EDUC
BEAUFORT COUNTY	77	23.2	0.0	22.3	42.1	27.3	11.5	9.1
WASHINGTON CITY	135	48.7	0.4	46.3	43.8	23.7	20.8	4.4
BERTIE COUNTY	60	14.4	0.0	16.8	76.8	55.0	32.0	8.5
CAMDEN COUNTY	35	41.7	0.0	44.6	30.7	25.7	11.1	8.6
CHOWAN COUNTY	83	39.0	0.0	28.8	50.7	42.2	13.7	9.6
CURRITUCK COUNTY	51	25.9	7.5	17.7	14.5	10.0	23.4	9.8
DARE COUNTY	88	37.4	1.4	38.5	5.2	5.7	10.9	1.1
GATES COUNTY	60	56.6	0.0	44.8	55.3	50.0	15.7	8.5
HERTFORD COUNTY	155	39.3	0.3	49.5	74.2	74.2	21.7	14.9
HYDE COUNTY	16	22.9	1.3	19.4	47.3	12.5	5.6	25.0
MARTIN COUNTY	148	29.4	6.0	28.9	55.1	44.2	21.6	7.5
PASQUOTANK COUNTY	148	35.4	1.7	32.1	45.4	29.7	10.5	6.1
PERQUIMANS COUNTY	58	44.6	0.0	36.7	43.5	44.8	16.7	15.5
PITT COUNTY	595	43.0	20.0	27.3	50.1	31.7	16.4	3.9
TYRRELL COUNTY	17	28.8	0.0	28.0	50.1	47.1	20.7	11.8
WASHINGTON COUNTY	76	34.7	0.5	31.0	61.1	46.1	24.1	5.3

NOTE: NUMBER TESTED IS THE NUMBER OF STUDENTS WHO TOOK THE CHEMISTRY TEST. PERCENT OF CLASS IS THE TOTAL NUMBER OF CHEMISTRY STUDENTS DIVIDED BY THE NUMBER OF STUDENTS IN THE NINTH GRADE CLASS. IT IS AN ESTIMATE OF THE PERCENT OF A COHORT OR CLASS OF STUDENTS WHO WILL TAKE CHEMISTRY BEFORE LEAVING HIGH SCHOOL. PERCENT OF ELEVENTH GRADE IS THE PERCENT OF ELEVENTH GRADE STUDENTS TAKING CHEMISTRY. PERCENT OF TENTH GRADE IS THE PERCENT OF TENTH GRADE STUDENTS TAKING CHEMISTRY. PERCENT BLACK IS THE PERCENT OF TOTAL ENROLLMENT THAT IS BLACK. PERCENT CHEMISTRY BLACK IS THE PERCENT OF CHEMISTRY STUDENTS THAT IS BLACK. PERCENT LESS THAN HS EDUC IS THE PERCENT OF EIGHTH GRADE STUDENTS TAKING THE CALIFORNIA ACHIEVEMENT TEST IN 1989 WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION. PERCENT CHEMISTRY LESS THAN HS EDUC IS THE PERCENT OF CHEMISTRY STUDENTS WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION.

Table 11, cont'd

REGION SOUTHEAST REGION REPORT

	NUMBER TESTED	PERCENT OF CLASS	PERCENT OF TENTH GRADE	PERCENT OF ELEVENTH GRADE	PERCENT BLACK	PERCENT CHEMISTRY BLACK	PERCENT LESS THAN HS EDUC	PERCENT CHEMISTRY LESS THAN HS EDUC
BRUNSWICK COUNTY	236	29.2	5.0	36.2	26.9	25.8	14.2	5.5
CARTERET COUNTY	234	37.9	1.8	31.4	13.3	5.2	15.4	4.3
NEW BERN-CRAVEN	361	32.2	9.1	26.8	36.7	19.9	9.2	2.8
DUPLIN COUNTY	197	31.4	6.6	23.4	43.4	30.5	12.3	5.1
GREENE COUNTY	86	36.4	0.0	38.1	60.9	46.5	39.3	7.0
JONES COUNTY	48	41.4	0.8	43.4	53.7	52.1	12.5	6.3
LENOIR COUNTY	174	31.1	10.8	24.3	33.4	17.9	17.3	7.5
KINSTON CITY	103	25.1	7.1	19.1	77.1	49.5	17.9	4.9
NEW HANOVER COUNTY	730	48.9	18.5	22.9	30.7	18.5	10.8	3.0
ONSLOW COUNTY	383	29.6	5.1	24.2	23.5	16.4	11.3	5.0
PAMLICO COUNTY	52	27.8	0.7	28.1	35.8	19.2	7.1	3.8
PENDER COUNTY	92	23.7	0.2	22.9	42.4	46.7	14.8	4.3
SAMPSON COUNTY	126	20.9	0.0	24.9	39.5	25.6	12.8	7.1
CLINTON CITY	41	16.3	4.7	13.5	48.0	34.1	8.5	4.9
WAYNE COUNTY	424	41.9	0.8	39.7	29.1	21.3	15.3	4.8
GOLDSBORO CITY	125	40.2	0.3	25.2	82.3	70.5	12.3	4.1

NOTE: NUMBER TESTED IS THE NUMBER OF STUDENTS WHO TOOK THE CHEMISTRY TEST. PERCENT OF CLASS IS THE TOTAL NUMBER OF CHEMISTRY STUDENTS DIVIDED BY THE NUMBER OF STUDENTS IN THE NINTH GRADE CLASS. IT IS AN ESTIMATE OF THE PERCENT OF A COHORT OR CLASS OF STUDENTS WHO WILL TAKE CHEMISTRY BEFORE LEAVING HIGH SCHOOL. PERCENT OF ELEVENTH GRADE IS THE PERCENT OF ELEVENTH GRADE STUDENTS TAKING CHEMISTRY. PERCENT OF TENTH GRADE IS THE PERCENT OF TENTH GRADE STUDENTS TAKING CHEMISTRY. PERCENT BLACK IS THE PERCENT OF TOTAL ENROLLMENT THAT IS BLACK. PERCENT CHEMISTRY BLACK IS THE PERCENT OF CHEMISTRY STUDENTS THAT IS BLACK. PERCENT LESS THAN HS EDUC IS THE PERCENT OF EIGHTH GRADE STUDENTS TAKING THE CALIFORNIA ACHIEVEMENT TEST IN 1989 WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION. PERCENT CHEMISTRY LESS THAN HS EDUC IS THE PERCENT OF CHEMISTRY STUDENTS WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION.

Table 11, cont'd.

REGION CENTRAL

REGION REPORT

	NUMBER TESTED	PERCENT OF CLASS	PERCENT OF TENTH GRADE	PERCENT OF ELEVENTH GRADE	PERCENT BLACK	PERCENT CHEMISTRY BLACK	PERCENT LESS THAN HS EDUC	PERCENT CHEMISTRY LESS THAN HS EDUC
DURHAM COUNTY	643	44.3	0.5	38.9	31.3	18.6	7.3	1.6
DURHAM CITY	241	36.2	6.6	45.0	90.4	92.1	18.7	5.9
EDGECOMBE COUNTY	173	34.5	6.1	33.3	59.3	69.4	25.6	12.8
TARBORO CITY	114	41.6	0.0	50.0	55.4	39.8	16.4	7.9
FRANKLIN COUNTY	96	22.3	0.8	26.9	43.2	34.4	11.0	7.3
FRANKLINTON CITY	19	15.0	0.0	17.1	61.4	57.9	44.3	31.6
GRANVILLE COUNTY	221	38.0	0.4	35.7	47.5	43.9	17.7	11.3
HALIFAX COUNTY	145	22.3	0.2	34.4	84.0	88.9	31.4	20.6
ROANOKE RAPIDS CITY	54	26.1	4.9	17.4	10.5	9.3	10.9	1.9
WELDON CITY	42	44.2	0.0	40.2	88.8	90.5	36.1	28.6
JOHNSTON COUNTY	463	38.3	0.2	38.5	25.2	14.1	16.5	4.8
NASH COUNTY	329	36.3	0.6	32.5	40.4	26.8	20.1	4.9
ROCKY MOUNT CITY	142	35.7	0.2	34.0	80.3	40.7	22.9	2.8
NORTHAMPTON COUNTY	130	40.0	9.4	29.8	79.7	76.9	27.2	17.7
VANCE COUNTY	172	33.0	0.0	29.3	57.2	34.9	23.8	7.6
WAKE COUNTY	2589	53.7	10.6	39.1	27.1	13.6	7.5	1.9
WARREN COUNTY	40	13.2	0.9	16.8	72.4	60.0	16.9	12.5
WILSON COUNTY	377	35.3	0.3	37.8	51.3	31.7	21.2	4.2

NOTE: NUMBER TESTED IS THE NUMBER OF STUDENTS WHO TOOK THE CHEMISTRY TEST. PERCENT OF CLASS IS THE TOTAL NUMBER OF CHEMISTRY STUDENTS DIVIDED BY THE NUMBER OF STUDENTS IN THE NINTH GRADE CLASS. IT IS AN ESTIMATE OF THE PERCENT OF A COHORT OR CLASS OF STUDENTS WHO WILL TAKE CHEMISTRY BEFORE LEAVING HIGH SCHOOL. PERCENT OF ELEVENTH GRADE IS THE PERCENT OF ELEVENTH GRADE STUDENTS TAKING CHEMISTRY. PERCENT OF TENTH GRADE IS THE PERCENT OF TENTH GRADE STUDENTS TAKING CHEMISTRY. PERCENT BLACK IS THE PERCENT OF TOTAL ENROLLMENT THAT IS BLACK. PERCENT CHEMISTRY BLACK IS THE PERCENT OF CHEMISTRY STUDENTS THAT IS BLACK. PERCENT LESS THAN HS EDUC IS THE PERCENT OF EIGHTH GRADE STUDENTS TAKING THE CALIFORNIA ACHIEVEMENT TEST IN 1989 WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION. PERCENT CHEMISTRY LESS THAN HS EDUC IS THE PERCENT OF CHEMISTRY STUDENTS WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION.

Table 11, cont'd.

REGION SOUTH CENTRAL REGION REPORT

	NUMBER TESTED	PERCENT OF CLASS	PERCENT OF TENTH GRADE	PERCENT OF ELEVENTH GRADE	PERCENT BLACK	PERCENT CHEMISTRY BLACK	PERCENT LESS THAN HS EDUC	PERCENT CHEMISTRY LESS THAN HS EDUC
BLADEN COUNTY	168	34.4	1.9	28.4	50.8	40.7	15.6	7.8
COLUMBUS COUNTY	106	16.0	0.2	16.6	39.1	38.7	20.3	4.7
WHITEVILLE CITY	78	39.0	13.5	26.2	40.2	33.3	18.3	0.0
CUMBERLAND COUNTY	1479	43.7	5.5	29.2	40.6	32.2	10.2	3.2
HARNETT COUNTY	279	27.9	6.4	23.4	31.7	19.1	24.6	5.5
HOKE COUNTY	99	23.3	0.0	24.3	52.0	44.4	23.2	12.1
LEE COUNTY	196	36.0	0.0	25.7	31.2	12.4	15.5	5.1
MONTGOMERY COUNTY	156	44.1	11.1	26.2	36.7	21.9	26.8	11.0
MOORE COUNTY	255	34.8	13.9	21.9	29.4	18.1	15.6	4.7
RICHMOND COUNTY	215	30.5	0.1	30.8	39.6	29.4	15.6	4.7
ROBESON COUNTY	380	28.3	0.1	30.9	21.0	22.0	32.4	15.1
FAIRMONT CITY	67	43.8	0.0	41.5	49.9	50.7	17.0	11.9
LUMBERTON CITY	180	54.5	0.3	50.6	36.7	34.1	17.9	4.4
RED SPRINGS	30	19.9	0.0	24.3	45.1	36.7	20.2	6.7
SAINT PAULS CITY	31	26.7	0.0	29.4	43.3	25.8	1.2	6.5
SCOTLAND COUNTY	119	17.2	0.6	17.3	45.4	42.0	19.7	2.6

NOTE: NUMBER TESTED IS THE NUMBER OF STUDENTS WHO TOOK THE CHEMISTRY TEST. PERCENT OF CLASS IS THE TOTAL NUMBER OF CHEMISTRY STUDENTS DIVIDED BY THE NUMBER OF STUDENTS IN THE NINTH GRADE CLASS. IT IS AN ESTIMATE OF THE PERCENT OF A COHORT OR CLASS OF STUDENTS WHO WILL TAKE CHEMISTRY BEFORE LEAVING HIGH SCHOOL. PERCENT OF ELEVENTH GRADE IS THE PERCENT OF ELEVENTH GRADE STUDENTS TAKING CHEMISTRY. PERCENT OF TENTH GRADE IS THE PERCENT OF TENTH GRADE STUDENTS TAKING CHEMISTRY. PERCENT BLACK IS THE PERCENT OF TOTAL ENROLLMENT THAT IS BLACK. PERCENT CHEMISTRY BLACK IS THE PERCENT OF CHEMISTRY STUDENTS THAT IS BLACK. PERCENT LESS THAN HS EDUC IS THE PERCENT OF EIGHTH GRADE STUDENTS TAKING THE CALIFORNIA ACHIEVEMENT TEST IN 1989 WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION. PERCENT CHEMISTRY LESS THAN HS EDUC IS THE PERCENT OF CHEMISTRY STUDENTS WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION.

Table 11, cont'd.

REGION NORTH CENTRAL REGION REPORT

	NUMBER TESTED	PERCENT OF CLASS	PERCENT OF TENTH GRADE	PERCENT OF ELEVENTH GRADE	PERCENT BLACK	PERCENT CHEMISTRY BLACK	PERCENT LESS THAN HS EDUC	PERCENT CHEMISTRY LESS THAN HS EDUC
ALAMANCE COUNTY	358	39.5	10.4	27.1	19.5	14.5	19.9	5.0
BURLINGTON CITY	263	53.8	2.8	40.9	34.1	24.7	14.4	2.3
CASWELL COUNTY	131	40.8	0.0	48.3	49.9	53.4	23.0	7.6
CHATHAM COUNTY	153	32.4	0.2	32.6	31.7	19.0	18.0	5.9
DAVIDSON COUNTY	587	43.8	18.6	24.3	3.2	4.4	16.1	6.2
LEXINGTON CITY	74	28.2	0.0	28.3	39.9	16.4	28.6	9.5
THOMASVILLE CITY	66	32.2	0.6	31.3	47.5	41.5	29.6	17.5
FORSYTH COUNTY	1134	38.1	7.5	20.0	36.6	21.1	11.1	2.1
GUILFORD COUNTY	903	48.4	7.2	32.9	17.0	9.4	9.2	2.6
GREENSBORO CITY	809	49.6	10.4	34.3	51.3	37.0	12.4	1.5
HIGH POINT CITY	193	28.2	0.4	30.4	48.8	24.6	19.1	5.7
ORANGE COUNTY	130	30.8	0.6	23.9	27.5	27.7	20.2	4.6
CHAPEL HILL CITY	299	83.1	6.6	57.5	21.9	10.2	7.0	0.3
PERSON COUNTY	122	30.0	0.0	26.1	37.2	15.6	22.6	2.6
RANDOLPH COUNTY	306	25.8	5.0	26.2	5.7	2.6	24.1	7.5
ASHEBORO CITY	112	43.4	8.0	33.5	16.0	9.8	17.9	3.6
ROCKINGHAM COUNTY	110	31.9	0.7	30.5	20.3	25.7	24.2	2.8
EDEN CITY	150	46.2	0.3	47.4	21.4	19.3	20.3	6.1
WESTERN ROCKINGHAM	129	42.6	9.1	29.4	20.1	20.9	28.1	10.9
REIDSVILLE CITY	84	30.4	0.0	27.7	47.3	34.5	25.5	3.6
STOKES COUNTY	185	37.3	1.9	29.7	7.7	5.9	19.6	6.5

NOTE: NUMBER TESTED IS THE NUMBER OF STUDENTS WHO TOOK THE CHEMISTRY TEST. PERCENT OF CLASS IS THE TOTAL NUMBER OF CHEMISTRY STUDENTS DIVIDED BY THE NUMBER OF STUDENTS IN THE NINTH GRADE CLASS. IT IS AN ESTIMATE OF THE PERCENT OF A COHORT OR CLASS OF STUDENTS WHO WILL TAKE CHEMISTRY BEFORE LEAVING HIGH SCHOOL. PERCENT OF ELEVENTH GRADE IS THE PERCENT OF ELEVENTH GRADE STUDENTS TAKING CHEMISTRY. PERCENT OF TENTH GRADE IS THE PERCENT OF TENTH GRADE STUDENTS TAKING CHEMISTRY. PERCENT BLACK IS THE PERCENT OF TOTAL ENROLLMENT THAT IS BLACK. PERCENT CHEMISTRY BLACK IS THE PERCENT OF CHEMISTRY STUDENTS THAT IS BLACK. PERCENT LESS THAN HS EDUC IS THE PERCENT OF EIGHTH GRADE STUDENTS TAKING THE CALIFORNIA ACHIEVEMENT TEST IN 1989 WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION. PERCENT CHEMISTRY LESS THAN HS EDUC IS THE PERCENT OF CHEMISTRY STUDENTS WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION.

Table 11, cont'd.

REGION SOUTHWEST REGION REPORT

	NUMBER TESTED	PERCENT OF CLASS	PERCENT OF TENTH GRADE	PERCENT OF ELEVENTH GRADE	PERCENT BLACK	PERCENT CHEMISTRY BLACK	PERCENT LESS THAN HS EDUC	PERCENT CHEMISTRY LESS THAN HS EDUC
ANSON COUNTY	139	35.7	12.9	24.5	61.0	56.8	15.3	5.8
CABARRUS COUNTY	412	41.4	7.9	31.0	14.8	8.5	13.4	3.9
KANNAPOLIS CITY	144	40.3	0.6	39.9	27.5	22.9	29.4	9.1
CLEVELAND COUNTY	240	36.9	0.5	31.9	25.5	27.1	18.5	9.6
KINGS MTN. CITY	106	34.5	1.6	28.8	23.7	15.1	21.5	5.7
SHELBY CITY	198	73.3	16.2	57.7	45.2	23.5	14.9	5.6
GASTON COUNTY	986	40.7	0.5	36.6	17.6	14.9	25.9	6.6
LINCOLN COUNTY	224	34.0	0.1	28.0	11.8	7.7	23.0	5.4
MECKLENBURG COUNTY	2653	49.4	0.8	44.5	39.4	25.2	13.4	3.0
ROWAN COUNTY	412	38.3	7.6	24.2	16.0	12.7	15.7	6.1
SALISBURY CITY	112	57.4	17.2	33.1	57.6	36.0	11.2	2.7
STANLY COUNTY	156	28.5	5.4	23.2	12.8	11.0	16.7	2.6
ALBEMARLE CITY	75	45.2	6.0	35.3	27.6	16.0	20.5	8.0
UNION COUNTY	355	32.7	4.3	31.8	14.9	9.1	14.6	3.7
MONROE CITY	92	39.8	0.4	37.0	57.8	40.0	22.4	4.5

NOTE: NUMBER TESTED IS THE NUMBER OF STUDENTS WHO TOOK THE CHEMISTRY TEST. PERCENT OF CLASS IS THE TOTAL NUMBER OF CHEMISTRY STUDENTS DIVIDED BY THE NUMBER OF STUDENTS IN THE NINTH GRADE CLASS. IT IS AN ESTIMATE OF THE PERCENT OF A COHORT OR CLASS OF STUDENTS WHO WILL TAKE CHEMISTRY BEFORE LEAVING HIGH SCHOOL. PERCENT OF ELEVENTH GRADE IS THE PERCENT OF ELEVENTH GRADE STUDENTS TAKING CHEMISTRY. PERCENT OF TENTH GRADE IS THE PERCENT OF TENTH GRADE STUDENTS TAKING CHEMISTRY. PERCENT BLACK IS THE PERCENT OF TOTAL ENROLLMENT THAT IS BLACK. PERCENT CHEMISTRY BLACK IS THE PERCENT OF CHEMISTRY STUDENTS THAT IS BLACK. PERCENT LESS THAN HS EDUC IS THE PERCENT OF EIGHTH GRADE STUDENTS TAKING THE CALIFORNIA ACHIEVEMENT TEST IN 1989 WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION. PERCENT CHEMISTRY LESS THAN HS EDUC IS THE PERCENT OF CHEMISTRY STUDENTS WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION.

Table 11, cont'd.

REGION NORTHWEST REGION REPORT

	NUMBER TESTED	PERCENT OF CLASS	PERCENT OF TENTH GRADE	PERCENT OF ELEVENTH GRADE	PERCENT BLACK	PERCENT CHEMISTRY BLACK	PERCENT LESS THAN HS EDUC	PERCENT CHEMISTRY LESS THAN HS EDUC
ALEXANDER COUNTY	180	46.0	12.8	32.9	8.3	8.9	23.1	5.6
ALLEGHANY COUNTY	58	45.0	11.0	28.3	2.7	7.0	31.0	8.6
ASHE COUNTY	75	22.4	0.4	17.9	1.0	0.0	22.7	6.7
AVERY COUNTY	54	24.5	0.0	25.5	0.7	0.0	18.4	7.4
BURKE COUNTY	279	28.7	0.1	25.3	8.2	7.2	21.3	3.9
CALDWELL COUNTY	197	19.2	0.3	20.8	7.9	3.1	26.7	5.1
CATAWBA COUNTY	343	32.0	0.3	30.8	7.6	4.1	15.0	3.8
HICKORY CITY	141	38.8	5.3	37.3	26.5	7.1	21.9	2.1
NEWTON-CONOVER CITY	83	34.4	0.0	37.8	19.2	13.3	17.6	4.8
DAVIE COUNTY	141	37.2	0.0	30.1	10.5	10.0	8.6	2.1
IREDELL COUNTY	337	35.9	0.0	35.9	14.4	8.6	15.8	5.1
MOORESVILLE CITY	52	33.5	4.2	23.9	25.7	1.9	19.3	3.8
STATESVILLE CITY	110	43.1	0.0	33.2	55.0	31.8	24.2	5.5
SURRY COUNTY	287	42.0	16.0	26.1	4.5	1.7	21.1	8.5
ELKIN CITY	36	42.9	0.0	34.1	9.2	8.3	10.6	5.6
MOUNT AIRY CITY	77	58.8	24.8	25.4	12.5	7.8	22.8	5.2
WATAUGA COUNTY	113	32.6	0.3	28.8	1.4	0.0	16.9	0.9
WILKES COUNTY	292	33.2	4.5	26.1	6.3	5.5	22.4	4.2
YADKIN COUNTY	123	29.4	7.4	23.1	5.0	5.7	17.1	4.9

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Table 11, cont'd

REGION WESTERN REGION REPORT

	NUMBER TESTED	PERCENT OF CLASS	PERCENT OF TENTH GRADE	PERCENT OF ELEVENTH GRADE	PERCENT BLACK	PERCENT CHEMISTRY BLACK	PERCENT LESS THAN HS EDUC	PERCENT CHEMISTRY LESS THAN HS EDUC
BUNCOMBE COUNTY	674	37.6	4.4	28.6	5.4	4.3	14.0	3.4
ASHEVILLE CITY	133	39.8	14.9	22.2	40.4	10.7	9.5	0.8
CHEROKEE COUNTY	137	40.8	1.0	44.9	2.2	2.9	21.1	11.7
CLAY COUNTY	23	21.7	0.9	16.7	0.8	0.0	22.6	13.0
GRAHAM COUNTY	41	38.3	0.0	35.7	0.0	0.0	15.1	4.9
HAYWOOD COUNTY	221	37.3	0.2	32.0	1.8	0.9	18.8	3.6
HENDERSON COUNTY	236	36.5	0.0	33.5	1.5	0.4	18.4	6.0
HENDERSONVILLE CITY	76	49.0	1.3	46.0	25.6	10.5	11.1	0.0
JACKSON COUNTY	145	47.9	3.5	43.5	1.2	2.1	20.1	4.9
MACON COUNTY	137	47.9	11.8	36.3	0.9	3.0	16.9	8.1
MADISON COUNTY	94	34.6	27.7	16.6	0.3	0.0	22.8	5.3
MCDOWELL COUNTY	190	33.3	0.0	36.2	5.1	5.8	20.4	9.5
MITCHELL COUNTY	54	27.1	14.3	15.7	0.1	0.0	25.6	0.0
POLK COUNTY	50	31.1	11.7	18.0	13.6	2.0	16.5	6.4
RUTHERFORD COUNTY	199	21.7	0.5	24.3	16.1	11.1	18.7	4.5
SWAIN COUNTY	73	55.7	18.8	40.4	0.4	0.0	23.3	11.1
TRANSYLVANIA COUNTY	172	46.2	11.8	32.2	7.0	2.9	24.7	5.2
YANCEY COUNTY	75	31.9	0.0	26.4	1.0	1.3	10.9	8.0

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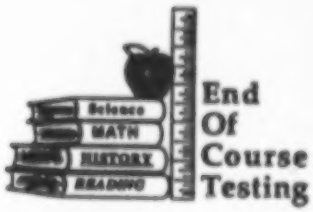
Table 12

State Percentile Table for 1989



STATE

NORTH CAROLINA END-OF-COURSE TESTING PROGRAM
CHEMISTRY --- 1989

SUMMARY STATISTICS ON CORE TEST

NUMBER OF STUDENTS WITH VALID SCORES	33352	HIGH SCORE	60
		LOW SCORE	7
MEAN	37.5	LOCAL PERCENTILES	RAW SCORE
STANDARD DEVIATION	8.4	90	48.27
		75	43.50
VARIANCE	70.0	50 (MEDIAN)	37.69
		25	31.80
MEAN PERCENT CORRECT	62.5	10	26.40

FREQUENCY DISTRIBUTION

RAW		CUMULATIVE		CUMULATIVE	STATE
60	3	33352	0.01	100.00	99
59	19	33349	0.06	99.99	99
58	29	33330	0.09	99.93	99
57	75	33301	0.22	99.85	99
56	127	33226	0.38	99.62	99
55	173	33099	0.52	99.24	99
54	242	32926	0.73	98.72	98
53	343	32684	1.03	98.00	97
52	363	32341	1.09	96.97	96
51	495	31978	1.48	95.88	95
50	594	31483	1.78	94.40	94
49	690	30889	2.07	92.62	92
48	800	30199	2.40	90.55	89
47	894	29399	2.68	88.15	87
46	1058	28505	3.17	85.47	84
45	1180	27447	3.54	82.29	81
44	1254	26267	3.76	78.76	77
43	1309	25013	3.92	75.00	73
42	1366	23704	4.10	71.07	69
41	1463	22338	4.39	66.98	65
40	1418	20875	4.25	62.59	60
39	1514	19457	4.54	58.34	56
38	1565	17943	4.69	53.80	51
37	1509	16378	4.52	49.11	47
36	1444	14869	4.33	44.58	42
35	1472	13425	4.41	40.25	38
34	1400	11953	4.20	35.84	34
33	1395	10553	4.18	31.64	30
32	1176	9158	3.53	27.46	26
31	1124	7982	3.37	23.93	22
30	1002	6858	3.00	20.56	19
29	936	5856	2.81	17.56	16
28	836	4920	2.51	14.75	13
27	688	4084	2.06	12.25	11
26	612	3396	1.83	10.18	9
25	547	2784	1.64	8.35	8
24	449	2237	1.35	6.71	6
23	347	1788	1.04	5.36	5
22	349	1441	1.05	4.32	4
21	272	1092	0.82	3.27	3
20	213	820	0.64	2.46	2
19	170	607	0.51	1.82	2
LESS THAN 19	437	437	1.31	1.31	1

Schedule for End-of-Course Testing: Revised May, 1989

Subject	School Year 1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Algebra I	▨	■	■	■	■	■	■	■
Algebra II		▨	■	■	■	■	■	■
Geometry				▨	■	■	■	■
Biology	▨	▨	■	■	■	■	■	■
Chemistry				▨	■	■	■	■
Physical Science						▨	■	■
Physics					▨	■	■	■
English I: Reading & Grammar (Reading Comprehension, Editing, and Literary Terms)					▨	■	■	■
English II: Composing					▨	▨	▨	■
English III: Reading and Analyzing Literature							▨	■
Government & Economics						▨	■	■
U.S. History			▨	■	■	■	■	■
Health & P.E.							▨	■
Foreign Language (To be specified)								▨

▨ Development: Items written by N.C. teachers; edited and placed in booklets; reviewed by teachers; field tested with students

■ Testing and Reporting: Multiple forms in each class, common (core) and different items on each form, student and curriculum information